

# PROFESSOR PAC-MAN

## GAME OPERATION

PROFESSOR PAC-MAN is a one or a two player game with a color T.V. monitor. The game gives a display which has all the parts shown in Figure 1-1

The game has five possible modes of operation: ATTRACT, READY-TO-PLAY, PLAY, HIGH SCORE/INITIAL, and SELF-TEST.

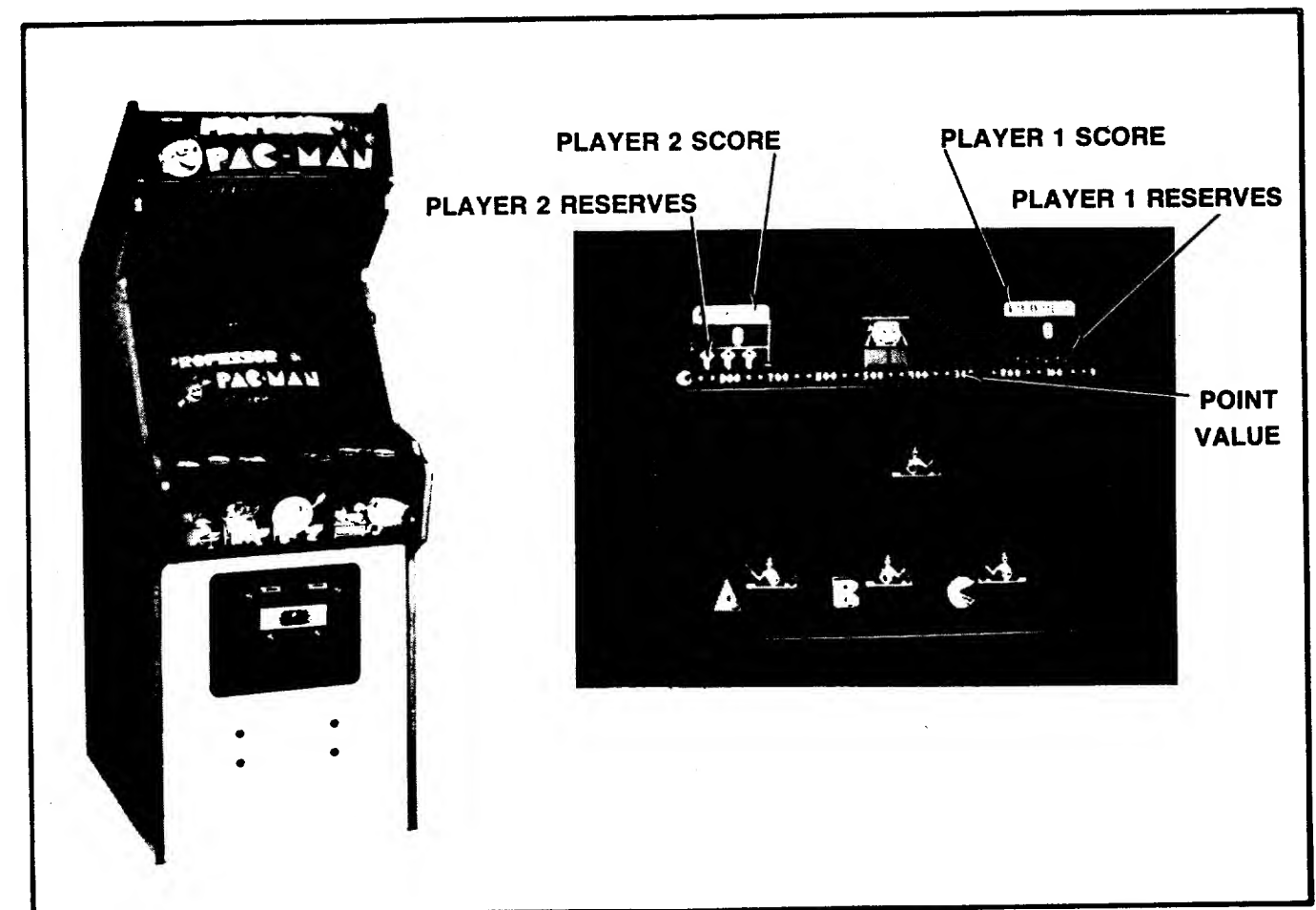


Figure 1-1 On Screen Graphics During Play

**WARNING**  
THIS GAME MUST BE GROUNDED. FAILURE TO DO SO MAY  
RESULT IN DESTRUCTION TO ELECTRONIC COMPONENTS.

**WARNING:** This equipment generates, uses, and can radiate radio frequency energy and if not and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a CLASS A computing device pursuant to SUBPART J of PART 15 of FCC RULES, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

**ELECTRICAL BULLETIN:** FOR ALL APPARATUS COVERED BY THE CANADIAN STANDARDS ASSOCIATION (CSA) STANDARD C22.2 NO. 1, WHICH EMPLOYS A SUPPLY CORD TERMINATED WITH A POLARIZED 2-PRONG ATTACHMENT PLUG.

**CAUTION:** TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

**ATTENTION:** POUR PREVENIR CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR. UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

**Bally MIDWAY**

*Invites You To Use*

OUR **TOLL FREE** NUMBERS FOR  
SERVICE INFORMATION CONCERNING THIS GAME, OR ANY  
OTHER BALLY MIDWAY GAME YOU NOW HAVE ON LOCATION.

**CALL US FOR PROMPT, COURTEOUS  
ANSWERS TO YOUR PROBLEMS.**

**VIDEO → Continental U.S. 1-800-323-7182**

**PINBALL → Continental U.S. 1-800-323-3555**

**Bally MIDWAY** — 10601 West Belmont Avenue, Franklin Park, Illinois, 60131 phone (312) 451-9200

© COPYRIGHT MCMLXXXIII BY BALLY/MIDWAY CO. ALL RIGHTS RESERVED.

NO PART OF THIS PUBLICATION MAY BE REPRODUCED BY ANY MECHANICAL, PHOTOGRAPHIC, OR ELECTRONIC PROCESS, OR IN THE FORM OF A PHONOGRAPHIC RECORDING, NOR MAY IT BE TRANSMITTED, OR OTHERWISE COPIED FOR PUBLIC OR PRIVATE USE, WITHOUT PERMISSION FROM THE PUBLISHER. THIS MANUAL IS FOR SERVICE USE ONLY, AND NOT FOR GENERAL DISTRIBUTION. FOR PERMISSION REQUESTS, WRITE: MIDWAY MFG. CO., 10750 W. GRAND AVE., FRANKLIN PARK, IL 60131

Printed in U.S.A.

**TABLE  
OF  
CONTENTS**

*PROF Pacman*

**DESCRIPTION**

**PAGE**

<b>I. Game Operation</b> .....	1-1
Self-Test Mode .....	1-2
Explanation of Self-Test Functions .....	1-3
Attract Mode .....	1-5
Ready-to-Play Mode .....	1-6
Play Mode .....	1-6
One Player Game .....	1-7
Two Player Game .....	1-7
<b>II. Illustrated Parts Breakdown</b> .....	
No. 573-Professor Pac-Man Upright-Front .....	2-2
No. 573-Professor Pac-Man Upright-Front Parts List .....	2-3
No. 573-Professor Pac-Man Upright-Rear Access .....	2-4
No. 573-Professor Pac-Man Upright-Rear Access Parts List .....	2-5
No. 573-Professor Pac-Man Upright-Header Fluorescent Light Assy .....	2-7
No. 573-Professor Pac-Man Upright-Fluorescent Light Assy. Parts List .....	2-7
Professor Pac-Man-Power Chassis Assy.-125VA, 115V .....	2-8
Professor Pac-Man-Power Chassis Assy.-125VA, 115V-Parts List .....	2-9
Professor Pac-Man-Front Door Assy-U.S.A. 25¢ .....	2-10
Professor Pac-Man-Front Door Assy-U.S.A. 25¢-Parts List .....	2-11
<b>III. Schematics and Wiring Diagrams</b> .....	
Wiring Diagram-Upright .....	3-1
C.P.U. P.C. Board-Component Layout .....	3-2
C.P.U. P.C. Board-Schematic .....	3-3
Screen RAM P.C. Board-Component Layout .....	3-4
Screen RAM P.C. Board-Schematic .....	3-5
Game Memory P.C. Board-Component Layout .....	3-6
Game Memory P.C. Board-Schematic .....	3-7
Game P.C. Board-Component Layout .....	3-8
Game P.C. Board-Schematic .....	3-9
640K EPROM P.C. Board-Component Layout .....	3-10
640K EPROM P.C. Board-Schematic .....	3-11
Pattern P.C. Board-Component Layout .....	3-12
Pattern P.C. Board-Schematic .....	3-13
Audio Amp P.C. Board-Component Layout .....	3-14
Audio Amp P.C. Board-Schematic .....	3-15
125VA Power Supply Board-Component Layout .....	3-16
125VA Power Supply Board-Schematic .....	3-17
125VA Power Chassis-Upright Schematic .....	3-18
Professor Pac-Man Option Switch Settings .....	Inside Back Cover

## SELF-TEST MODE

The Self-Test mode is a special mode for checking the game switches and computer functions. It is the easiest and best way to check for proper operation of the entire game.

When in the Self-Test mode you will see a CURSOR (arrow pointing to the right) at the left edge of the monitor screen. To position the CURSOR, use the right hand (1 PLAYER) "A" — "B" — "C" Control Buttons. The "B" Button is used to select/exit a function indicated by the CURSOR. The "A" Button is used to move the CURSOR up the left hand side of the monitor screen while the "C" Button is used to move the CURSOR down the left hand side of the monitor screen.

To exit the Self-Test mode, turn the Self-Test Switch to the "OFF" position, move the CURSOR to any of the following words: "REPEAT", "RETURN", or "EXIT" (the exact wording depends on the test level you are in), and press the "B" Button.

Displays of test results will generally take one of two forms: 1) a display of colored rectangles, or 2) the words "GOOD", "BAD" or "OK". In the colored rectangle displays, generally GREEN means GOOD and RED means BAD. Failures of any of the CIRCUITRY TESTS will probably require P.C. Board swapping in the field to determine the defective Board which can then be repaired later.

### SPECIAL NOTE

In the ROM TESTS-SUPER GAME CARD, empty EPROM Sockets X10 through X17 (displayed as "K" through "S" in the test) may be indicated to be "EMPTY" or "BAD". Either indication is correct because there is nothing (no electronic parts) in these positions.

The Self-Test mode is fairly self-explanatory. You may begin a Self-Test at any time after the power to the game is on by sliding the Self-Test switch to the "ON" position. Now that the game is in the Self-Test mode, the functions it will perform can best be seen if given in outline form. They will then each be explained individually.

**NOTE:** Putting the game into Self-Test WILL NOT cause it to erase any CREDITS it has on it from its memory.

## I. CIRCUITRY TESTS

- A. 16-COLOR BOARD TESTS
  - 1. WRITE MODES
  - 2. INTERCEPT
- B. RAM TESTS
  - 1. SCREEN RAM
  - 2. SCRATCH PAD
  - 3. WRITE-PROTECT
- C. ROM TESTS
  - 1. SUPER GAME CARD
  - 2. 16K CARD
- D. CONTINUOUS TEST
  - 1. START NEW TEST
  - 2. CONTINUE PREVIOUS TEST

## II. VIDEO TEST/ADJUST

- A. CROSS HATCH
- B. COLOR BARS
- C. GREY LEVELS
- D. PURITY

## III. AUDIO/MECHANICAL

- A. SOUNDS
- B. SWITCHES
- C. DEVICES
  - 1. COINCTR1
  - 2. COINCRT2
  - 3. LED1
  - 4. LED2
  - 5. LEFT LAMP A
  - 6. LEFT LAMP B
  - 7. LEFT LAMP C
  - 8. RIGHT LAMP A
  - 9. RIGHT LAMP B
  - 10. RIGHT LAMP C

## IV. STATISTICS

- A. TIME INDEX 1 PLYR
- B. TIME INDEX 2 PLYR
- C. SCORE INDEX
- D. CLEAR STATISTICS

## V. GAME SETTINGS

- A. SHILL SOUNDS
- B. FREE PLAY
- C. DOOR1—CO/CR
- D. DOOR2—CO/CR
- E. #FRUITS
- F. BONUS EVERY
- G. STARTING DIF
- H. INCREMENTAL DIF
- I. DEFAULTS

## EXPLANATION OF SELF-TEST FUNCTIONS

### I. CIRCUITRY TESTS

**THE 16 COLOR BOARD TESTS** check the majority of the circuitry on the SCREEN RAM and CPU boards.

**THE RAM TESTS** check the SCREEN RAM on the SCREEN RAM BOARD and the STATIC RAMS on the SUPER GAME MEMORY BOARD.

**THE ROM TEST** display will vary depending on the position of Setting Switch #5 on the GAME I/O BOARD. Initially, the game is manufactured using EPROM's and the required memory is split between the SUPER GAME MEMORY BOARD and the 640K EPROM BOARD. Later production will have ROM's. The position of the Setting Switch **WILL NOT** affect the operation of the game, only the manner in which the ROM TESTS are displayed. To properly display the ROM TEST for the BOARDS that you have in your games card rack, make sure Setting Switch #5 is set properly. (See DIP SWITCH SETTINGS under "SWITCHES" heading.)

**THE CONTINUOUS TEST** is generally used to test a game over night for heat related problems. Two options are available: 1) START NEW TEST resets the pass counter, error counter and reset counter, and 2) CONTINUE PREVIOUS TEST causes previous test to be continued without resetting the above mentioned counters. After each complete cycle of the CONTINUOUS TEST, the results are displayed. Also, by depressing and holding down the SELECT ONE PLAYER GAME BUTTON during a CONTINUOUS TEST, an almost immediate display can be obtained (the individual test that is running MUST be complete). Releasing the Button causes the CONTINUOUS TEST to proceed.

### II. VIDEO TEST/ADJUST

These displays are used for adjusting the monitor in the game. Use the CROSS HATCH to adjust horizontal and vertical linearity, horizontal and vertical size, and convergence. Use COLOR BARS to verify that all three color guns are functioning. Use the GREY LEVELS to adjust overall brightness. Block 0 should be BLACK and block 15 should be WHITE. Each block from 0 to 15 should be progressively brighter.

### III. AUDIO/MECHANICAL

These tests are designed to check all cabinet input and output devices for proper operation.

**SOUNDS:** Three tones are generated in each Audio Channel at the SAME time. Both channels should be at the SAME volume if the Volume Control Pots are set the same.

**SWITCHES:** This test is to verify that all Switches are functioning. Each rectangle represents a different Switch. The color of the rectangle should change from RED (for OFF) to GREEN (for ON) as each switch is actuated. Each Switch in the game is identified above its respective rectangle. The designation table follows.

- c1 - Coin Switch #1 (Left)
- c2 - Coin Switch #2 (Right)
- ts - Test Switch
- sl - Slam Switch (Tilt)
- 1p - Select 1 Player Game
- 2p - Select 2 Player Game
- la - Left Player A Button
- lb - Left Player B Button
- lc - Left Player C Button
- ra - Right Player A Button
- rb - Right Player B Button
- rc - Right Player C Button

**DIP SWITCH SETTINGS:** The designation table for the 8 position DIP SWITCH PACK located on the game I/O BOARD in the CARD RACK follows.

- ct - Cocktail Table
  - Switch Position #1 to "ON" = Cocktail Table Game
  - Switch Position #1 to "OFF" = Upright Game
- rs - Reset
  - Switch Position #2 to "ON" = Clears ALL Data (Score Index, Time Index, High Scores and Programmable Options whenever Game is turned "OFF" and then back "ON" again
  - Switch Position #2 to "OFF" = Does NOT reset data whenever Game is turned "OFF" and then back "ON" again
- lk - Lockup
  - Switch Position #3 to "ON" = Halt on error during CONTINUOUS TEST
  - Switch Position #3 to "OFF" = Does NOT halt on error, CONTINUOUS TEST goes on
- bp - Beep
  - Switch Position #4 to "ON" = Game gives audio response to test results—a HIGH pitched beep means good or OK and a LOW pitched beep means bad or error
  - Switch Position #4 to "OFF" = No audio response to test results
- rm - ROM
  - Switch Position #5 to "ON" = game uses 32K ROM's and displays test results accordingly
  - Switch Position #5 to "OFF" = game uses 8K and 16K ROM's and displays test results accordingly
- s6 - Switch Position #6 NOT USED
- s7 - Switch Position #7 NOT USED
- s8 - Switch Position #8 NOT USED

**DEVICES:** These tests check all Output Devices. When a particular test is chosen by positioning the cursor in front of the desired DEVICE to be tested and the Right Hand Player's "B" Button is pressed, the cursor disappears and the chosen DEVICE pulse "ON" and "OFF" at a rate of about once per second. Depressing the above mentioned "B" Button again causes the cursor to re-appear and the selected DEVICE should be in the "OFF" state. Games are shipped with only one Coin Counter. However, driver circuitry is provided for an OPTIONAL second Coin Counter. Therefore, on standard games, this test provides NO visual or audible output unless the Operator has installed the second Coin Counter.

#### IV. STATISTICS

These displays provide the Operator with information concerning playing times and scoring levels. This should prove useful in determining optimum Difficulty and Bonus Level Settings. The game keeps track of time and score for each game played and at the end of each game it updates the information used to create each of these displays.

**TIME INDEX—1 PLR:** In 90 second increments, displays the number of one player games played that fall into each category as well as the total number of one player games played.

**TIME INDEX—2 PLR:** In 180 second increments, displays the number of two player games played that fall into each category as well as the total number of two player games played.

**SCORE INDEX:** In 5000 point increments, displays the number of players that have achieved a final score that falls into each category. For example: if a two player game is played and one player finished with a score of 3456 and the second player finishes with a score of 2345, the number in the range of "0—5K" will increase by two. However, if player two had finished with a score of 6789, then the number in the range of "0—5K" will only increase by one and the number in the range of "5K—10K" will also increase by one.

**CLEAR STATISTICS:** This allows the Operator to clear the Time and Score Indexes individually. All-time high scores and initials **CAN NOT** be cleared using this routine.

#### V. GAME SETTINGS

**SHILL SOUNDS:** When the game is not being played and this feature is "ON", at the beginning of the attract sequence a musical tune is played to attract attention to the game. If this feature is not desired in quiet locations, it may be turned "OFF".

The "B" Button is used to select/exit this function and the "C" Button may be used to turn it "OFF" (The "A" Button is used to turn it "ON").

**FREE PLAY:** When this feature is "ON", no coins are required to play the game and the monitor screen displays this message "FREE PLAY, SO HIT THE BUTTON". The "B" Button is used to select/exit this function and the "C" Button may be used to turn it "OFF". (The "A" Button is used to turn it "ON").

**DOOR1—CO/CR // DOOR2—CO/CR:** This allows the Operator to set the numbers of coins required for a given number of credits. It is totally adjustable for any combination from 1 coin for 1 credit to 1 coin for 9 credits. The reverse is also true. The game can be set up to require as many as 9 coins to give 1 credit or 2 credits, etc. Any combination of numbers is possible with a little experimentation. For example: if the game were set for 3/3 it would be the same as 1/1. Also, if the game were set for 2/3, one credit would be issued for the first coin and two credits would be issued for the second coin. **HOWEVER**, if a game were played and completed **BETWEEN** when the first and second coins were inserted, the second coin would only give one credit and a third coin would be required to get the next additional two credits. The game keeps track of fractions of a coin but clears the fraction at the end of the game.

The "B" Button is used to select/exit this function. The 2 PLAYER Button selects the COINS half of the option (the number to the left of the "/") and the 1 PLAYER Button selects the CREDITS half of the option (the number to the right of the "/"). The "A" Button may be used to make the number go higher in value while the "C" Button may be used to make the number go lower in value.

**# FRUITS:** The number of FRUITS is the number of wrong answers a player is allowed at the start of a game. The "B" Button is used to select/exit this function. The "A" Button may be used to make the number go higher in value while the "C" Button may be used to make the number go lower in value.

**BONUS EVERY:** A BONUS question is given to a player every so often for answering a certain number of questions without a wrong answer (and without being interrupted by a correct answer provided by the other player in a TWO PLAYER game). It should also be noted that to increase the difficulty level of the game automatically, after the number of questions asked and answered is 30, the game adds two to the programmed number of questions that must be answered correctly without a wrong answer before the player will get another BONUS question.

For example, the default value is three. **AFTER** answering 3 questions in a row correctly, the player gets a BONUS question. After the 30th question is asked, the player **WILL NOT** get any BONUS questions until he answers 5 questions in a row correctly. **AFTER** the next 30 questions are asked he would have to answer 7 questions in a row correctly to get a BONUS question—and so on.

A player **DOES NOT** loose a FRUIT if he answers a BONUS question incorrectly. If he answers it correctly, he is awarded double the score of the question and is given an additional FRUIT.

The "B" Button is used to select/exit this function. The "A" Button may be used to make the number go higher in value while the "C" Button may be used to make the number go lower in value. For this option, **ONLY** the values 2, 3, 4, 5, and 6 are allowed as initial settings.

**STARTING DIFF:** The difficulty level of the game is controlled in several ways. Certain questions are inherently more difficult than others i.e. sequences of six objects are more difficult than sequences of four objects. Also, as the degree of difficulty increases, the Pac-Man that eats the score value dots across the top of the screen increases his speed so that there is less time to answer.

On a scale of 1 to 9, 1 is the **EASIEST** and 9 is the **MOST DIFFICULT** level of play. The setting of this option only sets the degree of difficulty the game **STARTS** at. The "B" Button is used to select/exit this function. The "A" Button may be used to make the number go higher in value while the "C" Button may be used to make the number go lower in value.

**INCREMENTAL DIFF:** How quickly the game gets more difficult is controlled by this setting. A setting of 1 would cause the game to take a **longer** time to get to the next level of difficulty while a setting of 9 would cause the game to take a **shorter** time to get to the next level of difficulty. The "B" Button is used to select/exit this function. The "A" Button may be used to make the number go higher in value while the "C" Button may be used to make the number go lower in value.

**DEFAULT:** The games **DEFAULT** settings are the factory recommended settings and are as follows:

SHILL SOUNDS are OFF  
FREE PLAY is OFF  
DOOR1—CO/CR is 1/1  
DOOR2—CO/CR is 1/1  
# FRUITS is 3  
BONUS EVERY 3 QUESTIONS  
STARTING DIFF is 3  
INCREMENTAL DIFF is 3

Depressing the "B" Button while "DEFAULTS" is selected will change the display to the above settings. The word "SET" will also be displayed to the right of the word "DEFAULTS" for about *two seconds* to alert the operator that the settings have been changed.

When finished with the Self-Test mode, slide the Self-Test switch back to the "OFF" position. To exit the Self-Test mode after the Self-Test Switch is in the "OFF" position, move the CURSOR to any of the following words: "REPEAT", "RETURN", or "EXIT" (the exact wording depends on the test level you are in), and press the "B" Button.

Normal game functions will now return to the monitor screen.

#### ATTRACT MODE

1. The Attract mode starts:

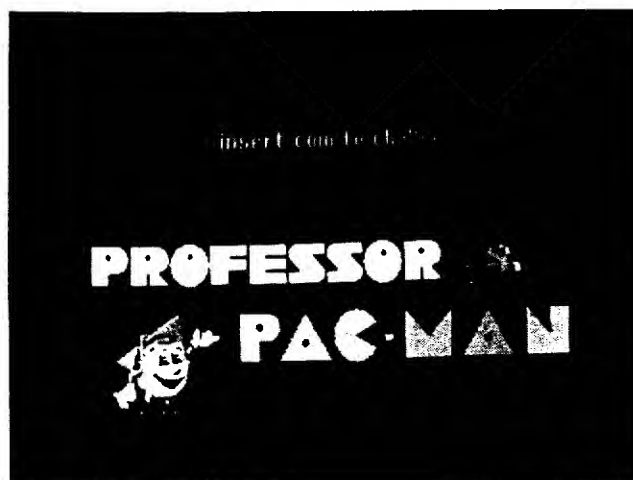
☐ Just after power has been turned on to the game. (Self-Test switch is in the "OFF" position.)

☐ After a Self-Test has been completed. (Performing a Self-Test **DOES NOT** set the credits in the games memory to zero "0".)

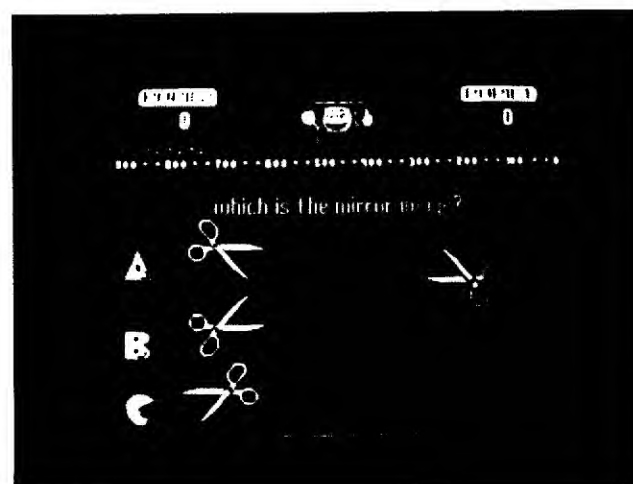
☐ After a play has been finished, the score was not high enough to put the game into the High Score/Initial mode, and there are no more credits left in the games memory.

☐ After the High Score/Initial mode when there are no more credits left in its memory.

☐ In the Attract mode, the game will give the following displays *centered* on the monitor screen:

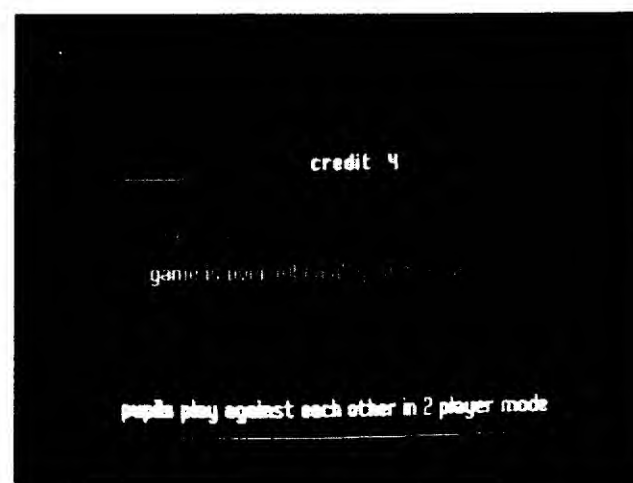


Attract Mode Display 1



Attract Mode Display 2

☐ No matter where the game is in the Attract mode sequence, it will immediately go to the following display as soon as a game has been paid for.



Ready to Play Mode Display

## READY-TO-PLAY MODE

1. The Ready-To-Play mode starts when enough coins have been accepted for a 1 or a 2 player game.
2. The Ready-To-Play mode ends when either the "1 PLAYER" or the "2 PLAYER" push button is pressed.
3. In the Ready-To-Play mode, the game will give the above displays *centered* on the monitor screen.
4. If no START button is pressed, the displays will remain indefinitely as shown above.

## PLAY MODE

**PROFESSOR PAC-MAN** is a game of observation skill designed for either 1 or 2 players. After a question is displayed the player must answer correctly to receive a score. A player's score is shown within the blackboard assigned to him. Player 1's blackboard is in the upper right hand corner of the monitor screen and player 2's blackboard is in the upper left hand corner of the monitor screen. A FRUIT symbol and a number are displayed next to each player's blackboard. The number indicates the quantity of incorrect answers a player has left **BEFORE** the game is over for that particular player. The FRUIT symbol indicates the level of difficulty that that particular player has achieved at any point in the game.

Professor Pac-Man is seated at the desk in the top center of the monitor screen and he displays the number of questions that have been asked so far this game (including BONUS QUESTIONS). Below Professor Pac-Man is a row of dots representing the score for the current question and indirectly the time remaining to answer the current question.

After the current question is asked, a Pac-Man starts eating the dots from left to right. When the question is answered, the Pac-Man stops eating the dots and his position is relative to the score that is awarded if the question is answered correctly. If the question was answered incorrectly, Pac-Man will continue eating dots until the question is answered correctly (you are allowed 2 tries) or until he eats the last dot—which is equal to zero points and is the "time up point".

The maximum number of points that can be awarded is "900" and the minimum is "0". As the game progresses in difficulty, the amount of time it takes Pac-Man to eat all the scoring dots gets shorter and shorter until, at the most difficult level of play, he eats them all in about 3 seconds.

Bonus questions are awarded if a player answers a given number of questions in a row correctly—no mistakes. The given number of questions that the player must answer before he gets a bonus question is Operator selectable during the Self-Test mode. A correct answer to a bonus question is rewarded by giving the player two times the score value attained plus a BONUS FRUIT. A player is allowed **ONLY 1 CHANCE** to answer a bonus question correctly. However, an incorrect answer to a bonus question **DOES NOT** penalize the player by subtracting a Fruit.

Certain factors differ between 1 and 2 player games so each will be covered by itself later in this text.

## ONE PLAYER GAME

In the **ONE PLAYER GAME**, the player is challenging himself to answer correctly and quickly to achieve a high score. As each question is asked, the player is permitted **two** chances to answer correctly. If the player fails to respond to a question, a Fruit is subtracted from the player. The *first time* within a question that a player answers incorrectly, a Fruit is subtracted. If time still remains, the player can try to answer again. However, if he **DOES NOT** try to answer again and time runs out, another Fruit **WILL NOT** be subtracted from him. **BUT—** if the player does have enough time—and tries to answer the question the *second time*—but is still incorrect, **ANOTHER** Fruit **WILL** be subtracted from him.

*It is to the players advantage NOT* to try to answer **ANY** question the *second time* if he is not 100% sure of the answer because he will not be penalized again if he doesn't try. But he will be penalized for another wrong attempt which turns out to be wrong.

## TWO PLAYER GAME

In the **TWO PLAYER GAME**, the players are challenging each other to see who can answer correctly *first*. The player that answers correctly *first* receives the score and that player is indicated by the marquee-like pattern moving on the players blackboard.

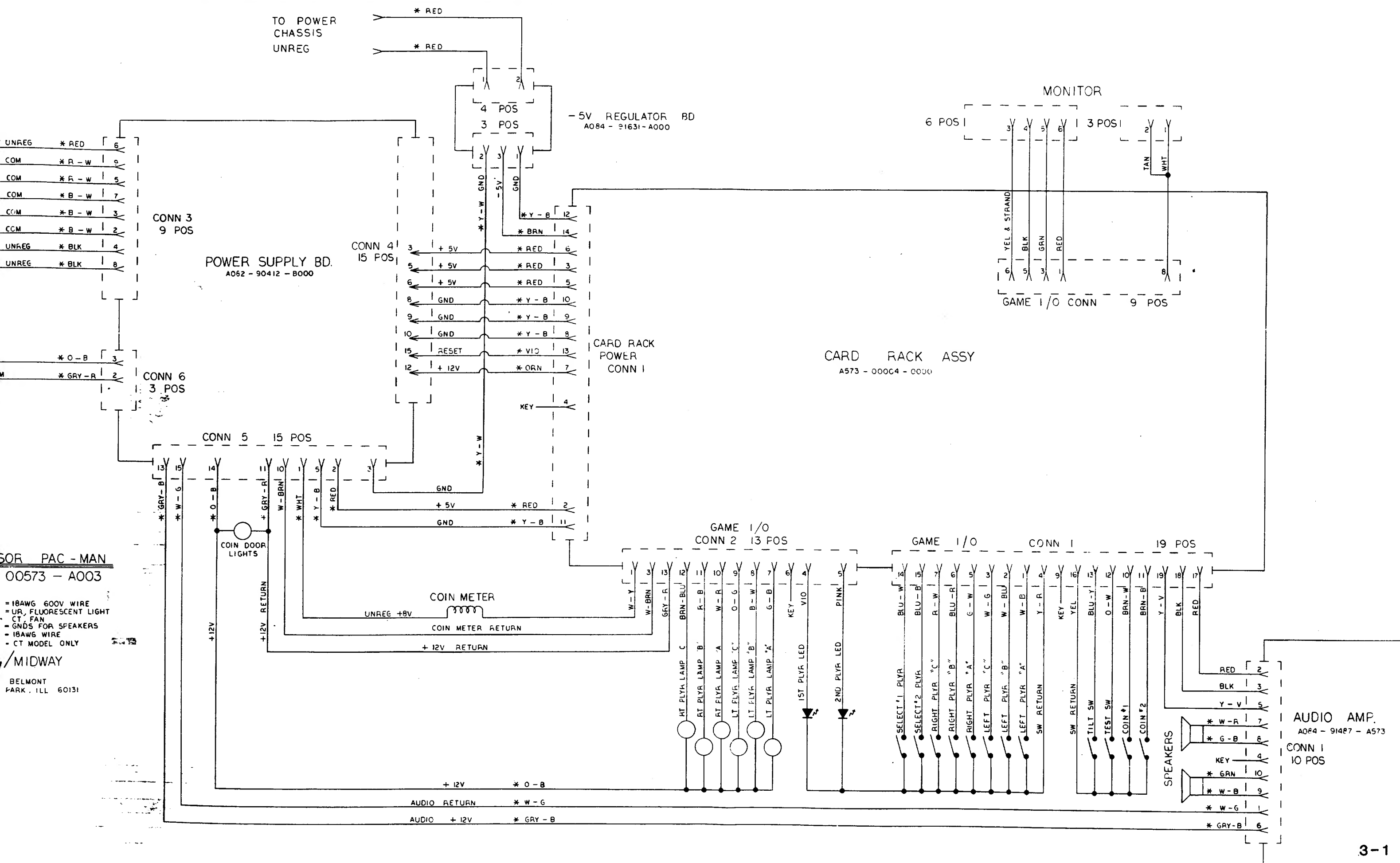
If a player answers incorrectly, he loses a Fruit and the other player **MUST** try to answer the question correctly in the time remaining. If the other player *fails* to answer or *answers incorrectly*, a Fruit is subtracted from him also.

The game ends for the first player to run out of Fruit. The remaining player then continues to play from that point on just as though it were a single player game (that is—the remaining player is permitted two chances to answer each question).

## HIGH SCORE/INITIAL MODE:

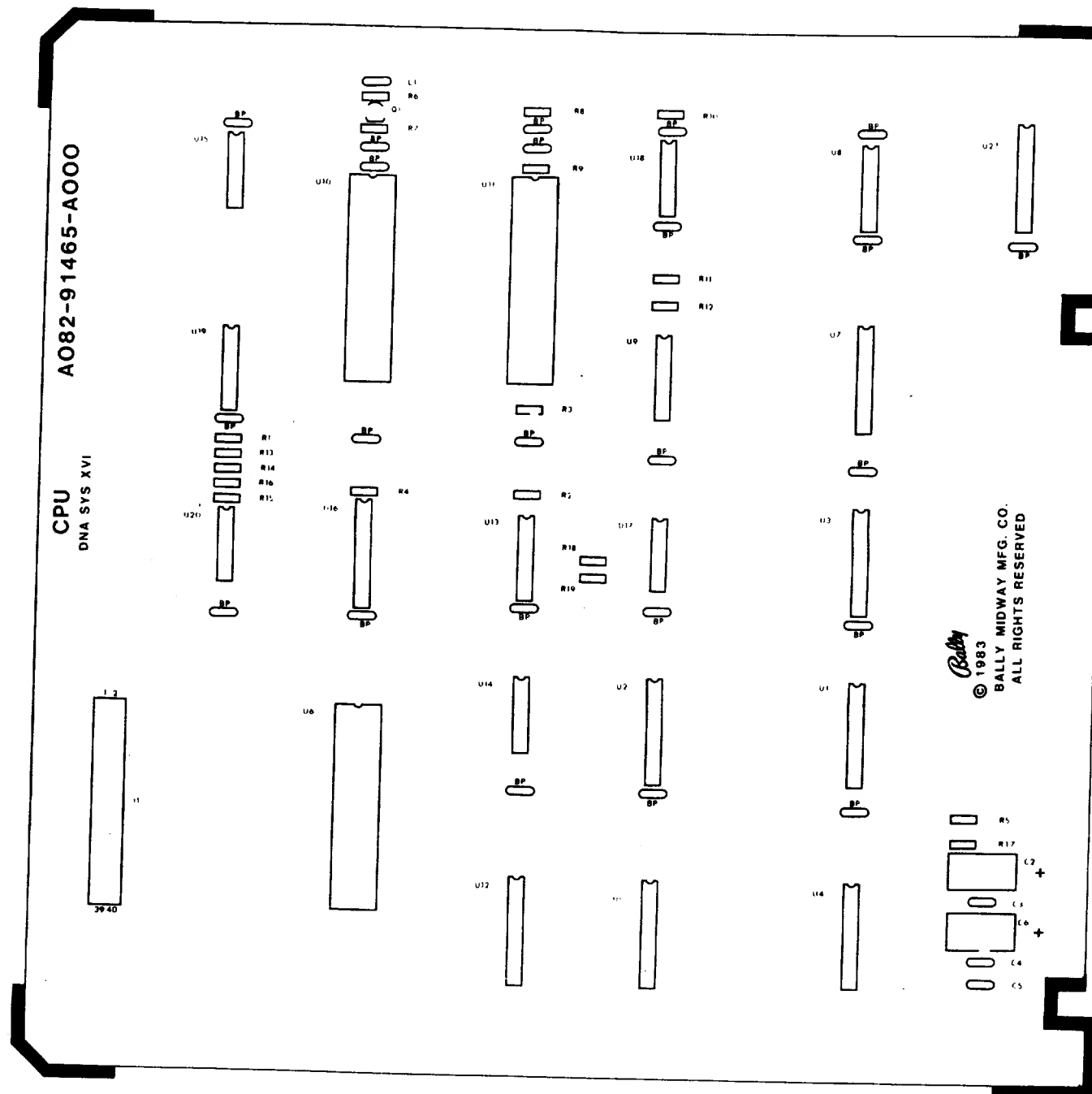
Follow the *on-screen instructions* to enter your initials.





# DESIGNATION LIST

DESIGNATION NO.	DESCRIPTION
BP	0.1 MFD +80-20% AX. CER.
C1	0.1 MFD +80-20% AX. CER.
C2	15 MFD 20% TANT.
C3-C5	0.1 MFD +80-20% AX. CER.
C6	15 MFD 20% TANT.
R1	2200 OHM 1/4W 5%
R2-R4	1000 OHM 1/4W 5%
R5	10K OHM 1/4W 5%
R6	20K OHM 1/4W 5%
R7	100K OHM 1/4W 5%
R8-R9	75 OHM 1/4W 5%
R10	36 OHM 1/4W 5%
R11-R12	75 OHM 1/4W 5%
R13-R14	11K OHM 1/4W 5%
R15	4300 OHM 1/4W 5%
R16	47K OHM 1/4W 5%
R17	1000 OHM 1/4W 5%
R18-R19	47 OHM 1/4W 5%
Q1	2N6427
U1-U2	74LS244
U3	74LS245
U4-U5	74LS244
U6	Z-80
U7	74LS245
U8-U9	74LS257
U10	CUSTOM ADDRESS
U11	CUSTOM DATA
U12	CUSTOM U12
U13	74LS174
U14	74LS30
U15	MC14024BCP
U16	CUSTOM U16
U17	74S74
U18	74F02
U19	MC14574
U20	74S74
U21	74LS374
	NON-REFERENCED 20-PIN IC SOCKET 40-PIN IC SOCKET CARD EJECTORS PC BOARD



## CROSS REFERENCE LIST

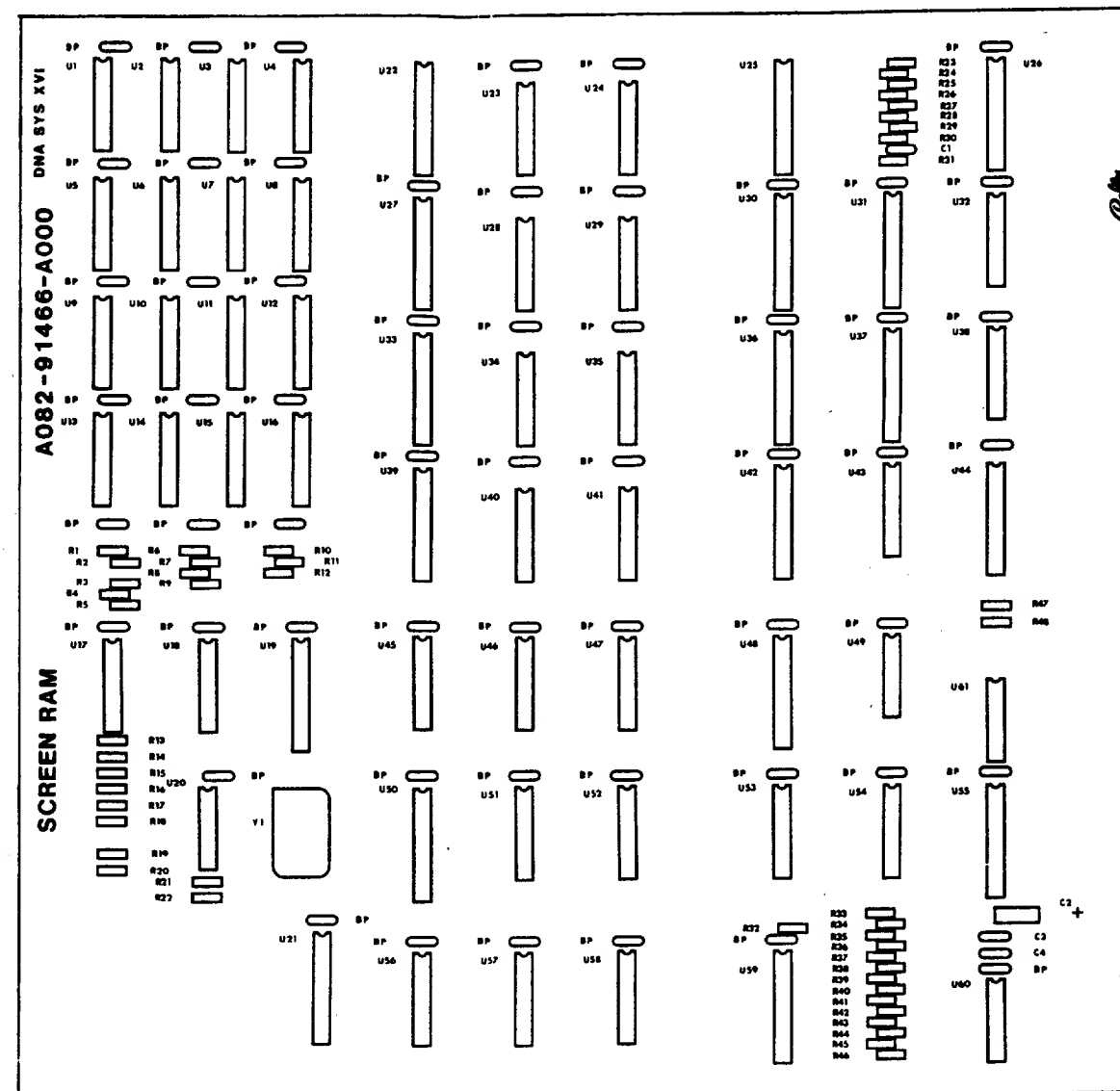
DESCRIPTION	QTY	DESIGNATION NO.	CPU BOARD ASSY
0.1 MFD	27		
15 MFD	2	C2, C6	0339-00800-0001 0339-00800-0002
36 OHM	1	R10	0062-07783-1XXX
47 OHM	2	R18, R19	0062-08683-1XXX
75 OHM	4	R8, R9, R11, R12	0062-10183-1XXX
1000 OHM	4	R2-R4	0062-17983-1XXX
2200 OHM	1	R1	0062-19583-1XXX
4300 OHM	1	R15	0062-20983-1XXX
10K OHM	1	R5	0062-22783-1XXX
11K OHM	2	R13, R14	0062-22983-1XXX
20K OHM	1	R6	0062-24183-1XXX
47K OHM	1	R16	0062-25983-1XXX
100K OHM	1	R7	0062-27583-1XXX
2N6427	1	Q1	0339-00802-0001
74LS30	1	U14	0339-00803-0006
74S74	2	U17, U20	0339-00803-0026
74LS174	1	U13	0339-00803-0007
74LS244	4	U1, U2, U4, U5	0339-00803-0008
74LS245	2	U3, U7	0339-00803-0009
74LS257	2	U8, U9	0339-00803-0010
74F02	1	U18	0339-00803-0011
74LS374	1	U21	0339-00803-0012
MC14024B	1	U15	0339-00803-0013
MC14574	1	U19	0339-00803-0014
Z-80	1	U6	0339-00803-0014
CUSTOM ADDRESS	1	U10	0339-00803-0001
CUSTOM DATA	1	U11	0339-00803-0002
CUSTOM U12	1	U12	0339-00803-0003
CUSTOM U16	1	U16	0339-00803-0004 0339-00803-0005
20-PIN IC SOCKET	9		0339-00804-0005
40-PIN IC SOCKET	3		0339-00804-0009
CARD EJECTORS	2		0339-00804-0010
0.025 GOLD PINS	40		0017-00033-0493
P.C BOARD, BLANK	1		A080-91465-A000

PROJECT ENG. DAVE OTTO		USED ON PROF. PACMAN		REVISIONS	
DO NOT SCALE Dwg		SCALE FULL	NO REQ'D PER		Bally / MIDWAY MFG. CO. FRANKLIN KY, U.S.A.
DIM TOLERANCES UNLESS SPECIFIED		ASSY. DWG. CPU		PART NO	
DATE 7 / 5 / 83		A082-91465-A000		M051 - 00339 - A001	





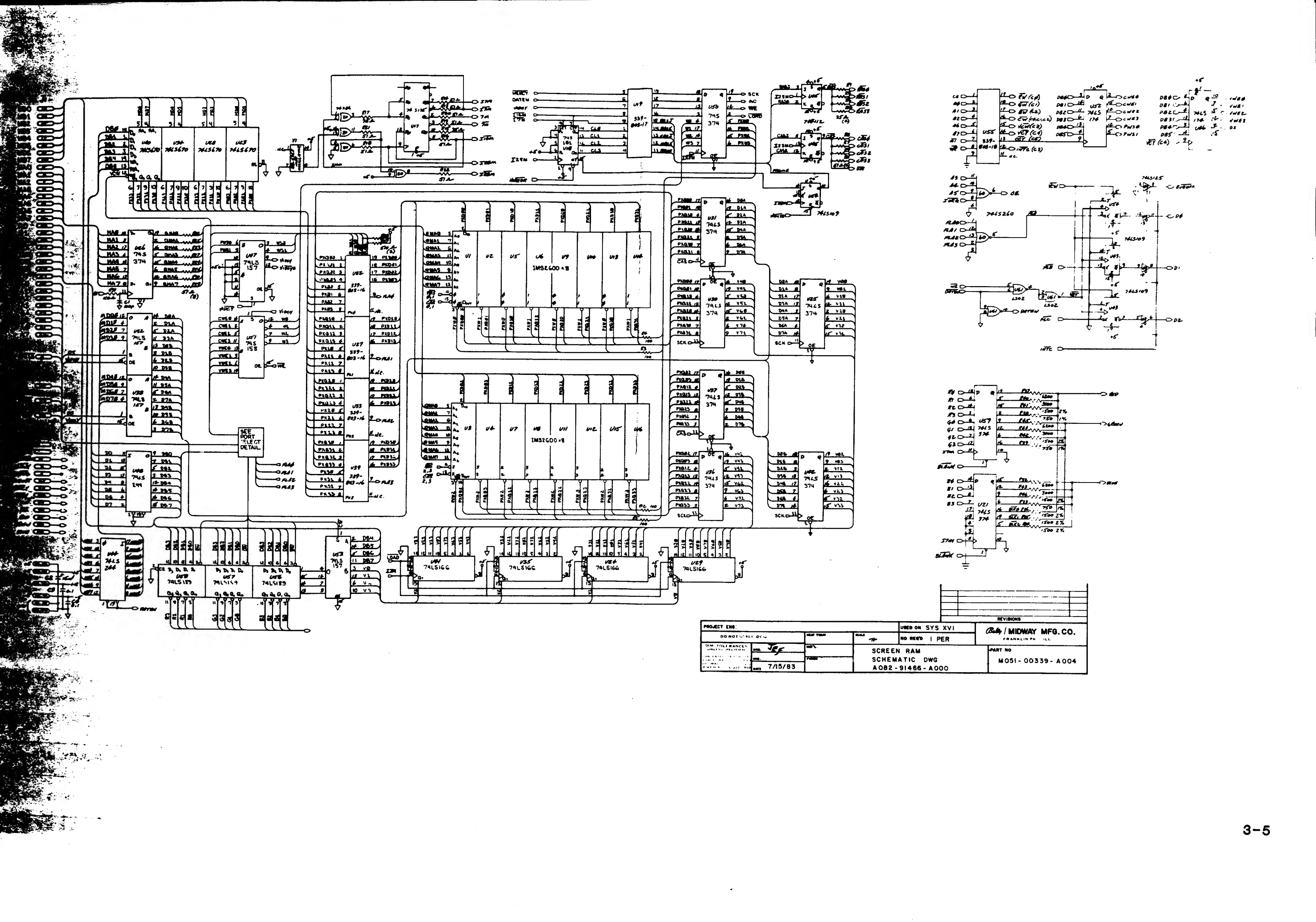
DESIGNATION LIST			
DESIGNATION NO.	DESCRIPTION	DESIGNATION NO.	DESCRIPTION
BP	0.1 MFD +80-20% AX. CER.	U1-U16	MID2600
C1	100 PFD 5% AX. CER.	U17	74S175
C2	15 MFD 20% TANT.	U18	74S161
C3	0.1 MFD +80-20% AX. CER.	U19	CUSTOM U19
C4	0.1 MFD +80-20% AX. CER.	U20	74S86
R1	75 OHM 1/4W 5%	U21	74S374
R2	75 OHM 1/4W 5%	U22	CUSTOM U22
R3	100 OHM 1/4W 5%	U23	74LS670
R4	100 OHM 1/4W 5%	U24	74LS166
R5	100 OHM 1/4W 5%	U25	74LS374
R6	75 OHM 1/4W 5%	U26	74S374
R7	51 OHM 1/4W 5%	U27	CUSTOM U27
R8	51 OHM 1/4W 5%	U28	74LS670
R9	51 OHM 1/4W 5%	U29	74LS166
R10	75 OHM 1/4W 5%	U30	74LS374
R11	51 OHM 1/4W 5%	U31	74LS374
R12	100 OHM 1/4W 5%	U32	74LS157
R13	51 OHM 1/4W 5%	U33	CUSTOM U33
R14	51 OHM 1/4W 5%	U34	74LS670
R15	75 OHM 1/4W 5%	U35	74LS166
R16	51 OHM 1/4W 5%	U36	74LS374
R17	75 OHM 1/4W 5%	U37	74LS374
R18-R30	51 OHM 1/4W 5%	U38	74LS157
R31	100 OHM 1/4W 5%	U39	CUSTOM U39
R32	6200 OHM 1/4W 5%	U40	74LS670
R33	750 OHM 1/4W 1%	U41	74LS166
R34	1500 OHM 1/4W 2%	U42	74LS374
R35	1500 OHM 1/4W 2%	U43	74LS109
R36	1500 OHM 1/4W 2%	U44	74LS244
R37	6200 OHM 1/4W 5%	U45	74F112
R38	750 OHM 1/4W 1%	U46	74LS174
R39	750 OHM 1/4W 1%	U47	74LS157
R40	3000 OHM 1/4W 5%	U48	74LS244
R41	1500 OHM 1/4W 2%	U49	74LS125
R42	1500 OHM 1/4W 2%	U50	74S374
R43	3000 OHM 1/4W 5%	U51	74S158
R44	3000 OHM 1/4W 5%	U52	74LS174
R45	6200 OHM 1/4W 5%	U53	74LS157
R46	1500 OHM 1/4W 2%	U54	74LS109
R47	510 OHM 1/4W 5%	U55	CUSTOM U55
R48	510 OHM 1/4W 5%	U60	74LS189
		U61	74LS189
		U62	74S374
		U63	74LS260
		U64	74LS02
		Y1	28.636360 MHZ
		NON-REFERENCED	
		16-PIN IC SOCKET	
		20-PIN IC SOCKET	
		CARD EJECTORS	
		PC BOARD	



CROSS REFERENCE LIST			
DESCRIPTION	QTY	DESIGNATION NO.	PART NOS.
100 PFD	1	C1	0339-00800-0004
0.1 MFD	59		0339-00800-0001
15 MFD	1	C2	0339-00800-0002
51 OHM	20	R7-R9, R11, R13, R14, R16, R18-R30	0062-089B3-1XXX
75 OHM	6	R1, R2, R6, R10, R15, R17	0062-101B3-1XXX
100 OHM	5	R3-R5, R12, R31	0062-110B3-1XXX
510 OHM	2	R47, R48	0062-159B3-1XXX
750 OHM	3	R33, R38, R39	0062-171B1-3XXX
1500 OHM	6	R34-R36, R41, R42	0062-187B2-1XXX
3000 OHM	3	R40, R43, R44	0062-201B3-1XXX
6200 OHM	3	R32, R37, R45	0062-217B3-1XXX
74LS02	1	U61	0339-00803-0090
74LS109	2	U43, U54	0339-00803-0019
74LS125	1	U49	0339-00803-0020
74LS157	4	U32, U38, U47, U53	0339-00803-0021
74LS166	4	U24, U29, U35, U41	0339-00803-0022
74LS174	2	U46, U52	0339-00803-0023
74LS189	3	U56-U58	0339-00803-0024
74LS244	2	U44, U48	0339-00803-0025
74LS260	1	U60	0339-00803-0027
74LS374	6	U25, U30, U31, U36, U37, U42	0339-00803-0028
74LS670	4	U23, U28, U34, U40	0339-00803-0029
74S86	1	U20	0339-00803-0030
74S158	1	U51	0339-00803-0032
74S161	1	U18	0339-00803-0033
74S175	1	U17	0339-00803-0034
74S374	4	U21, U26, U50	0339-00803-0035
74F112	1	U45	0339-00803-0091
CUSTOM U22-27-33-39	4	U22, U27, U33, U39	0339-00803-0016
CUSTOM U19	1	U19	0339-00803-0017
CUSTOM U55	1	U55	0339-00803-0018
MID2600	16	U1-U16	0339-00803-0015
16-PIN IC SOCKET	16		0339-00804-0003
20-PIN IC SOCKET	18		0339-00804-0005
CARD EJECTORS	2		0339-00804-0010
28.636360 MHZ	1	Y1	0339-00804-0012
P.C. BOARD, BLANK	1		A080-91466-A000

REVISIONS	

PROJECT ENG: D. OTTO		USED ON PROF. PAC-MAN	
DO NOT SCALE DWG		SCALE FULL	NO. REQ'D 1 PER
DIM TOLERANCES UNLESS SPECIFIED		ASSEMBLY DWG.	
DATE 7/5/83		SCREEN RAM P.C. BD.	
DATE 7/5/83		A082-91466-A000	
PART NO		MO51 - 00339 - A003	



PROJECT ENG:			USED ON SYS XVI		REVISIONS	
DRAWN BY: J. J. J.	DATE: 7/15/83	SCALE: 1/8"	NO. REV'D:	PER:	B. J. J. / MIDWAY MFG. CO.	
DIM. TOLERANCES: .005"			SCREEN RAM		PART NO.	
MATERIAL: 1/8" ALUMINUM			SCHEMATIC DWG		MO51-00339-A004	
			A082-91466-A000			

# DESIGNATION LIST

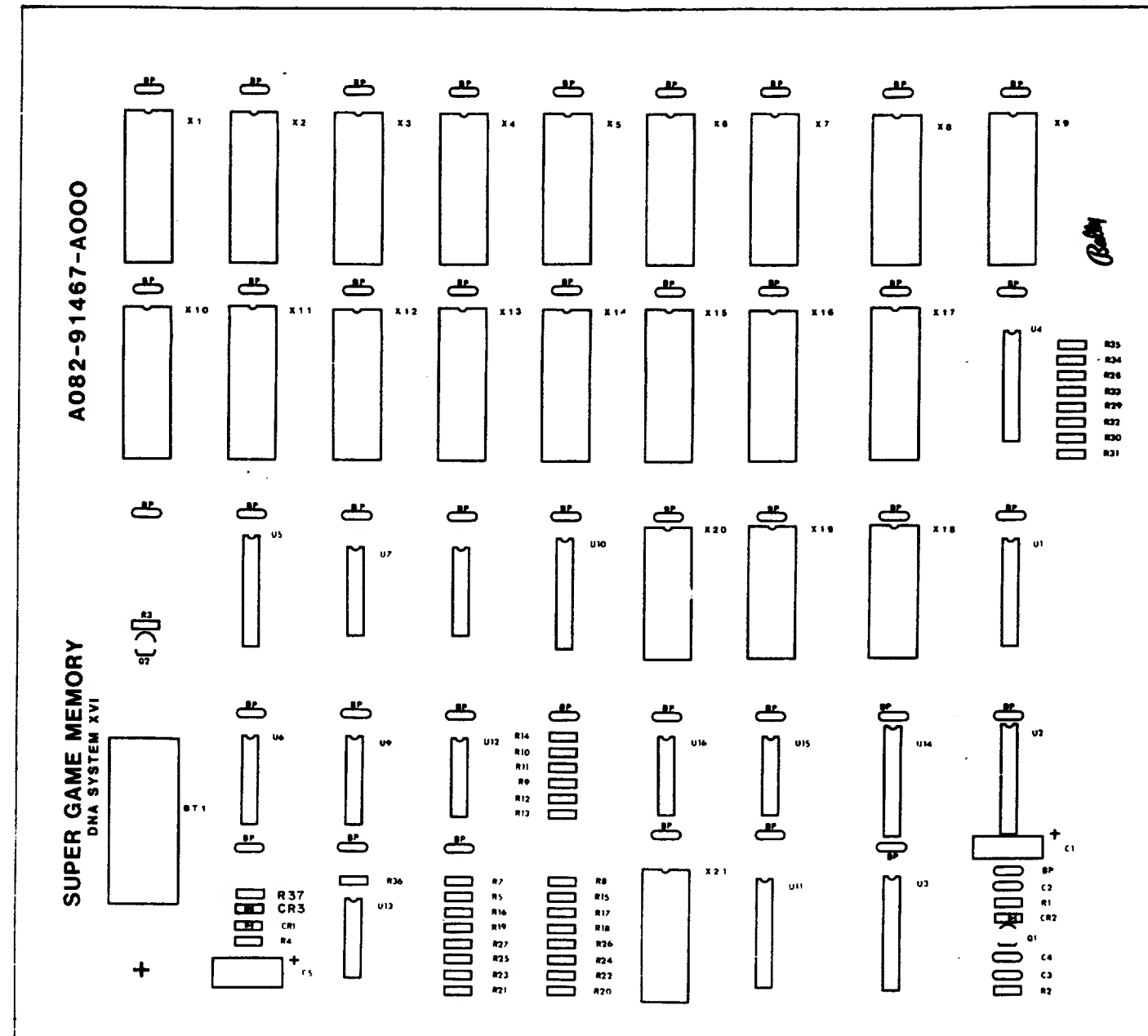
DESIGNATION NO.	DESCRIPTION
BP	0.1 MFD +80-20% AX. CER.
C1	15 MFD 20% TANT.
C2	0.1 MFD +80-20% AX. CER.
C3	0.1 MFD +80-20% AX. CER.
C4	0.1 MFD +80-20% AX. CER.
C5	15 MFD 20% TANT.
C6	0.1 MFD +80-20% AX. CER.
R1	1000 OHM 1/4W 5%
R2	120 OHM 1/4W 5%
R3	2700 OHM 1/4W 5%
R4	220K OHM 1/4W 5%
R5	10K OHM 1/4W 5%
R6	470K OHM 1/4W 5%
R7-R27	10K OHM 1/4W 5%
R28-R35	110 OHM 1/4W 5%
R36	10K OHM 1/4W 5%
R37	470 OHM 1/4W 5%
BT1	3.6V NICD
CR1	1N4004
CR2	1N4004
CR3	1N4616
Q1	2N4401
Q2	2N4401
U1	74LS244
U2	74LS244
U3	74LS244
U4	74LS245
U5	CUSTOM U5
U6	74LS175
U7	74LS138
U8	74LS138
U9	74LS139
U10	CUSTOM U10
U11	CUSTOM U11
U12	74LS74
U13	7403
U14	74LS245
U15	7417
U16	7417

X1-X17 28-PIN IC SOCKET  
X18-X21 24-PIN IC SOCKET

NON-REFERENCED  
20-PIN IC SOCKET  
CARD EJECTORS  
PC BOARD

NON-REFERENCED  
USED ON PROFESSOR  
PAC-MAN  
2763 EPROM POS X1  
2763 EPROM POS X2  
2763 EPROM POS X3  
2763 EPROM POS X4  
2763 EPROM POS X5  
2763 EPROM POS X6  
2763 EPROM POS X7  
2763 EPROM POS X8  
2763 EPROM POS X9

2K X 8 RAM POS X18  
2K X 8 RAM POS X19  
2K X 8 RAM POS X20  
2K X 8 RAM POS X21



## CROSS REFERENCE LIST

DESCRIPTION	QTY	DESIGNATION NO.	PART NOS.
0.1 MFD	45		0339-00800-00
15 MFD	2	C1, C5	0339-00800-00
3.6V	1	BT1	0339-00804-00
110 OHM	8	R28-R35	0062-11383-1X
120 OHM	1	R2	0062-11683-1X
470 OHM	1	R37	0062-15683-1X
1000 OHM	1	R1	0062-17983-1X
2700 OHM	1	R3	0062-19983-1X
10K OHM	23	R7-R27	0062-22783-1X
220K OHM	1	R4	0062-29183-1X
1N4004	2	CR1, CR2	0339-00801-00
1N4616	1	CR3	0339-00801-00
2N4401	2	Q1, Q2	0339-00802-00
74LS74	1	U12	0339-00803-00
74LS138	2	U7, U8	0339-00803-00
74LS139	1	U9	0339-00803-00
74LS175	1	U6	0339-00803-00
74LS244	3	U1-U3	0339-00803-00
74LS245	2	U4, U14	0339-00803-00
7403	1	U13	0339-00803-00
7417	2	U15, U16	0339-00803-00
CUSTOM U5	1	U5	0339-00803-00
CUSTOM U10	1	U10	0339-00803-00
CUSTOM U11	1	U11	0339-00803-00
20-PIN IC SOCKET	8		0339-00804-00
24-PIN IC SOCKET	4	X18-X21	0339-00804-00
28-PIN IC SOCKET	17	X1-X17	0339-00804-00
CARD EJECTORS	2		0339-00804-00
P.C. BOARD, BLANK	1		A080-91467-A00

DESCRIPTION	QTY	DESIGNATION NO.	PART NOS.
PROG 2763	1		5730-40AXA-AX
PROG 2763	1		5730-40AXA-BX
PROG 2763	1		5730-40AXA-CX
PROG 2763	1		5730-40AXA-DX
PROG 2763	1		5730-40AXA-EX
PROG 2763	1		5730-40AXA-FX
PROG 2763	1		5730-40AXA-GX
PROG 2763	1		5730-40AXA-HX
PROG 2763	1		5730-40AXA-JX
PHAN 2K X 8	4		0339-00803-00

REVISIONS

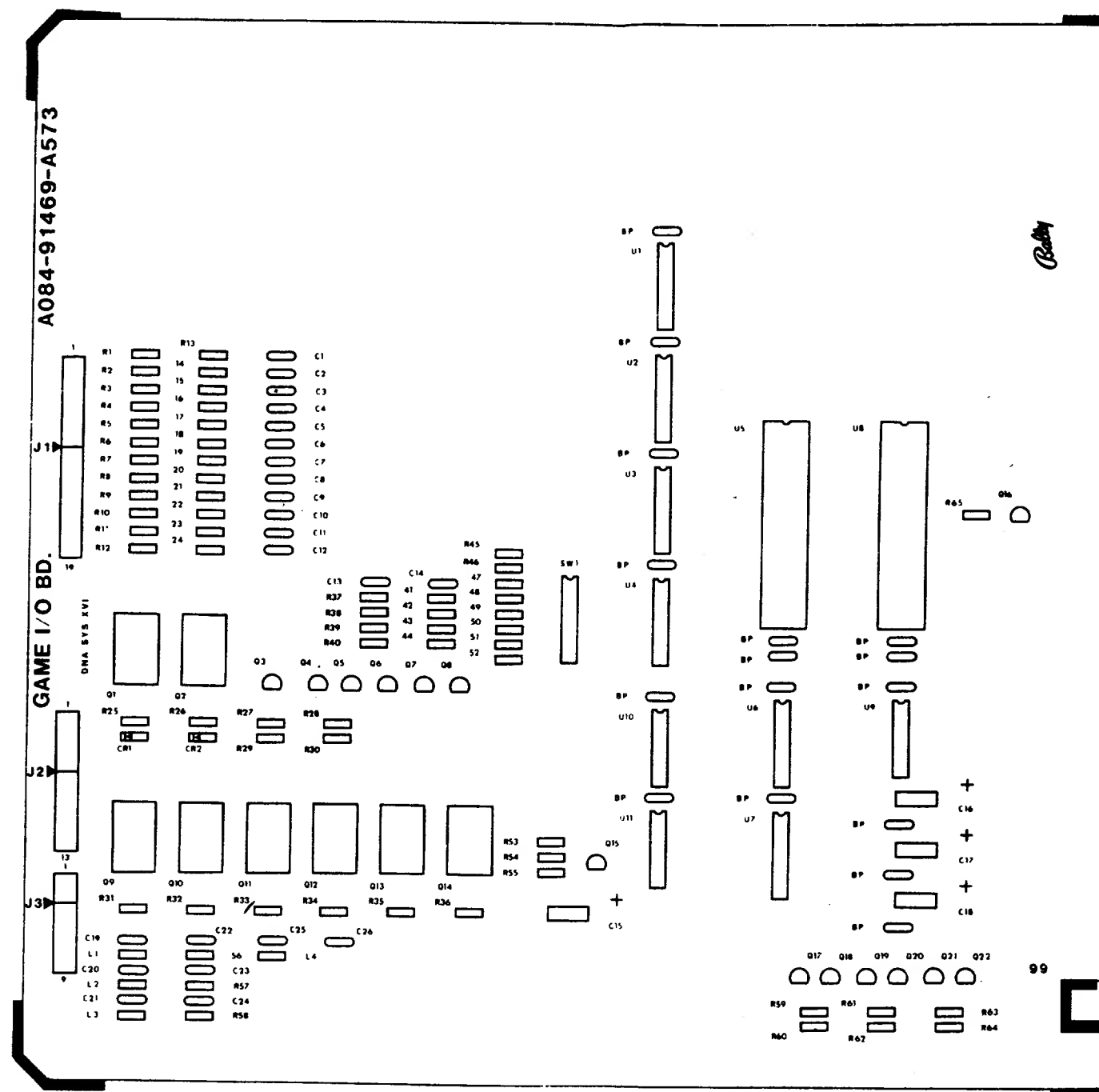
PROJECT ENG: D.OTTO		USED ON PROF. PACMAN		<b>Bally / MIDWAY MFG. CO.</b> FRANKLIN, ILL.
DO NOT SCALE DWG	HEAT TREAT	SCALE FULL	NO REQ'D PER	
DIM TOLERANCES UNLESS SPECIFIED	DATE 7/15/83	ASSY. DWG. SUPER GAME MEMORY		PART NO M051 - 00339 - A005
DATE 7/15/83		A082 91467 A000		



# DESIGNATION LIST

DESIGNATION NO.	DESCRIPTION
BP	0.1 MFD +80-20% AX. CER.
C1-C14	0.1 MFD +80-20% AX. CER.
C15-C18	15 MFD 20% TANT.
C19-C24	27 PFD 5% AX. CER.
C25-C26	470 PFD 20% AX. CER.
R1-R12	220 OHM 1/4W 5%
R13-R24	2700 OHM 1/4W 5%
R25-R28	270 OHM 1/4W 5%
R29-R30	220 OHM 1/4W 5%
R31-R36	270 OHM 1/4W 5%
R37-R38	100 OHM 1/4W 5%
R39-R40	330 OHM 1/4W 5%
R41-R42	2200 OHM 1/4W 5%
R43-R44	47K OHM 1/4W 5%
R45-R52	2700 OHM 1/4W 5%
R53	22K OHM 1/4W 5%
R54	5100 OHM 1/4W 5%
R55	100 OHM 1/4W 5%
R56-R58	150 OHM 1/4W 5%
R59	11 OHM 1/4W 5%
R60	22 OHM 1/4W 5%
R61	11 OHM 1/4W 5%
R62	22 OHM 1/4W 5%
R63	11 OHM 1/4W 5%
R64	22 OHM 1/4W 5%
R65	2700 OHM 1/4W 5%
CR1-CR2	1N4004
Q1-Q2	TIP-110
Q3-Q6	2N4401
Q7-Q8	2N4403
Q9-Q14	TIP-31
Q15	2N6427
Q16	2N4401
Q17-Q22	2N4403
U1-U4	MC14539B
U5	CUSTOM I/O
U6-U7	74LS174
U8	CUSTOM I/O
U9	74LS86
U10-U11	7417
L1-L4	FERRITE BEAD
J1	KK100-19RA
J2	KK100-13RA
J3	KK100-09RA
SW1	8-POS DIP SWITCH

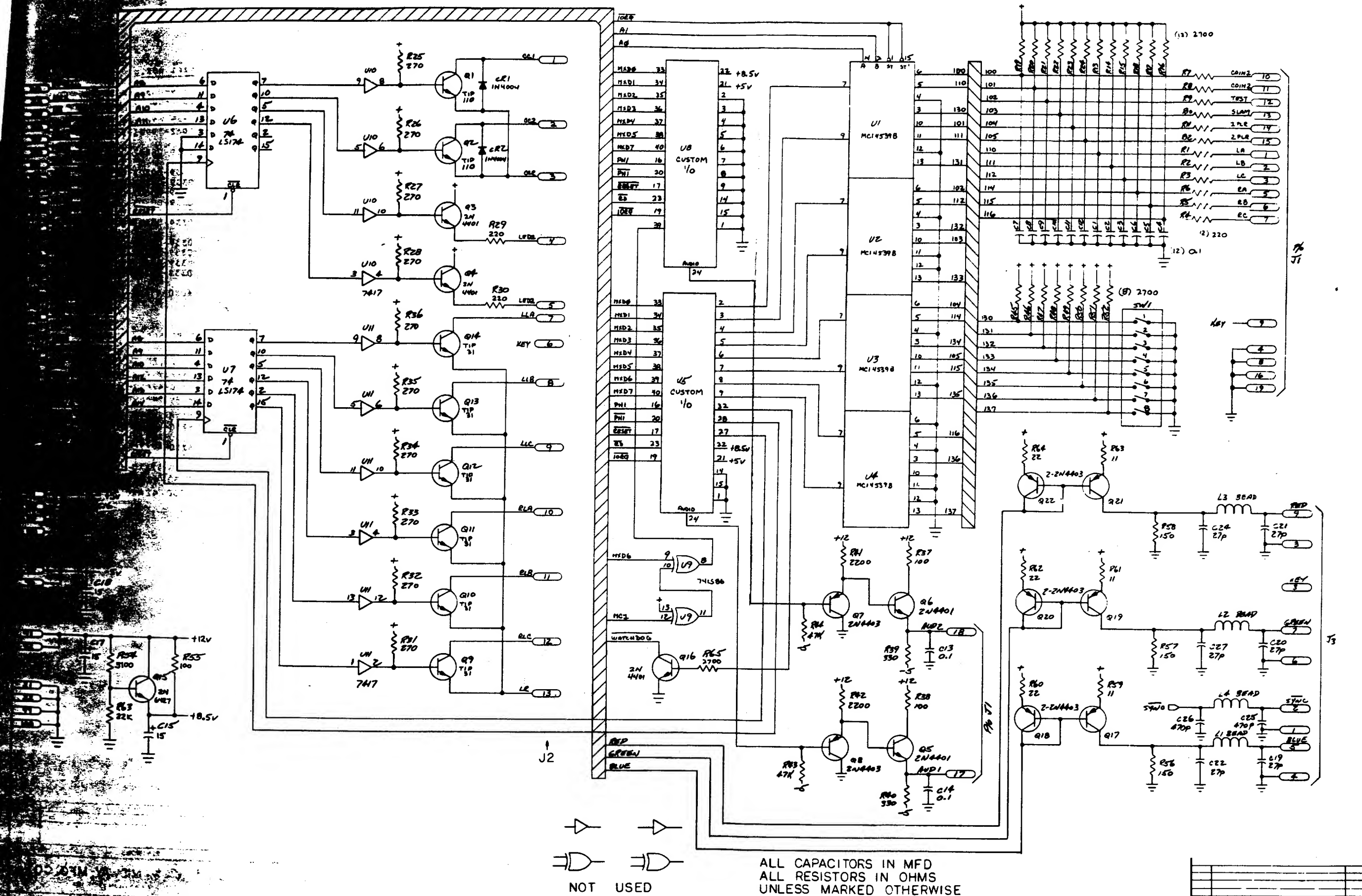
NON-REFERENCED  
40-PIN IC SOCKET  
CARD EJECTORS  
METAL SNAPS  
PC BOARD



## CROSS REFERENCE LIST

DESCRIPTION	QTY	DESIGNATION NO.	PART NOS.
27 PFD	6	C19-C24	0573-00800-0005
470 PFD	2	C25, C26	0573-00800-0006
0.1 MFD	30		0573-00800-0001
15 MFD	4	C15-C18	0573-00800-0002
11 OHM	3	R59, R61, R63	0062-052B3-1XXX
22 OHM	3	R60, R62, R64	0062-063B3-1XXX
100 OHM	3	R37, R38, R55	0062-110B3-1XXX
150 OHM	3	R56-R58	0062-122B3-1XXX
220 OHM	14	R1-R12, R29, R30	0062-133B3-1XXX
270 OHM	10	R25-R28, R31-R36	0062-138B3-1XXX
330 OHM	2	R39, R40	0062-144B3-1XXX
2200 OHM	2	R41, R42	0062-195B3-1XXX
2700 OHM	21	R13-R24, R45-R52	0062-199B3-1XXX
5100 OHM	1	R54	0062-213B3-1XXX
22K OHM	1	R53	0062-243B3-1XXX
47K OHM	2	R43, R44	0062-259B3-1XXX
1N4004	2	CR1, CR2	0573-00801-0001
2N4401	5	Q3-Q6, Q16	0573-00802-0001
2N4403	8	Q7, Q8, Q17-Q22	0573-00802-0002
2N6427	1	Q15	0573-00802-0003
TIP-31	6	Q9-Q14	0573-00802-0004
TIP-110	2	Q1, Q2	0573-00802-0005
7417	2	U10, U11	0573-00803-0005
74LS86	1	U9	0573-00803-0002
74LS174	2	U6, U7	0573-00803-0003
MC14539B	4	U1-U4	0573-00803-0004
CUSTOM I/O	2	U5, U8	0573-00803-0001
8-POS DIP SW.	1	SW1	0339-00804-0011
FERRITE BEAD	4	L1-L4	0069-275XX-XC6X
KK100-09RA	1	J3	3000-16468-0900
KK100-13RA	1	J2	3000-16468-1300
KK100-19RA	1	J1	3000-16468-1900
40-PIN IC SOCKET	2		0339-00804-0009
METAL SNAPS	8		0573-00804-0001
CARD EJECTORS	2		0573-00804-0010
PC BOARD, BLANK	1		A080-91469-A573

PROJECT ENG: D. OTTO		USED ON PROF. PACMAN		REVISIONS	
DO NOT SCALE DWG		SCALE FULL	NO. REQ'D IPER	Bally / MIDWAY MFG. CO. FRANKLIN PK ILL	
DIM TOLERANCES UNLESS SPECIFIED		ASSY. DWG. I/O BD.		PART NO.	
UNLESS OTHERWISE SPECIFIED: FRACTIONAL: 1/16 DECIMAL: .005 HOLE DIA: +.002 .000		A084-91469-A573		M051 - 00573 - A008	
DATE 7/5/83					



PROJECT INFO			USED ON PROF. PAC-MAN		REVISIONS	
DESIGNED BY	OTTO	DATE	NO. REV.	PER	Bally / MIDWAY MFG. CO. FRANKLIN, PA. U.S.A.	
DATE	7/6/83	TIME				
GAME BOARD SCHEMATIC DWG A 084-91469-A573			PART NO.		MOSI-00573-A009	

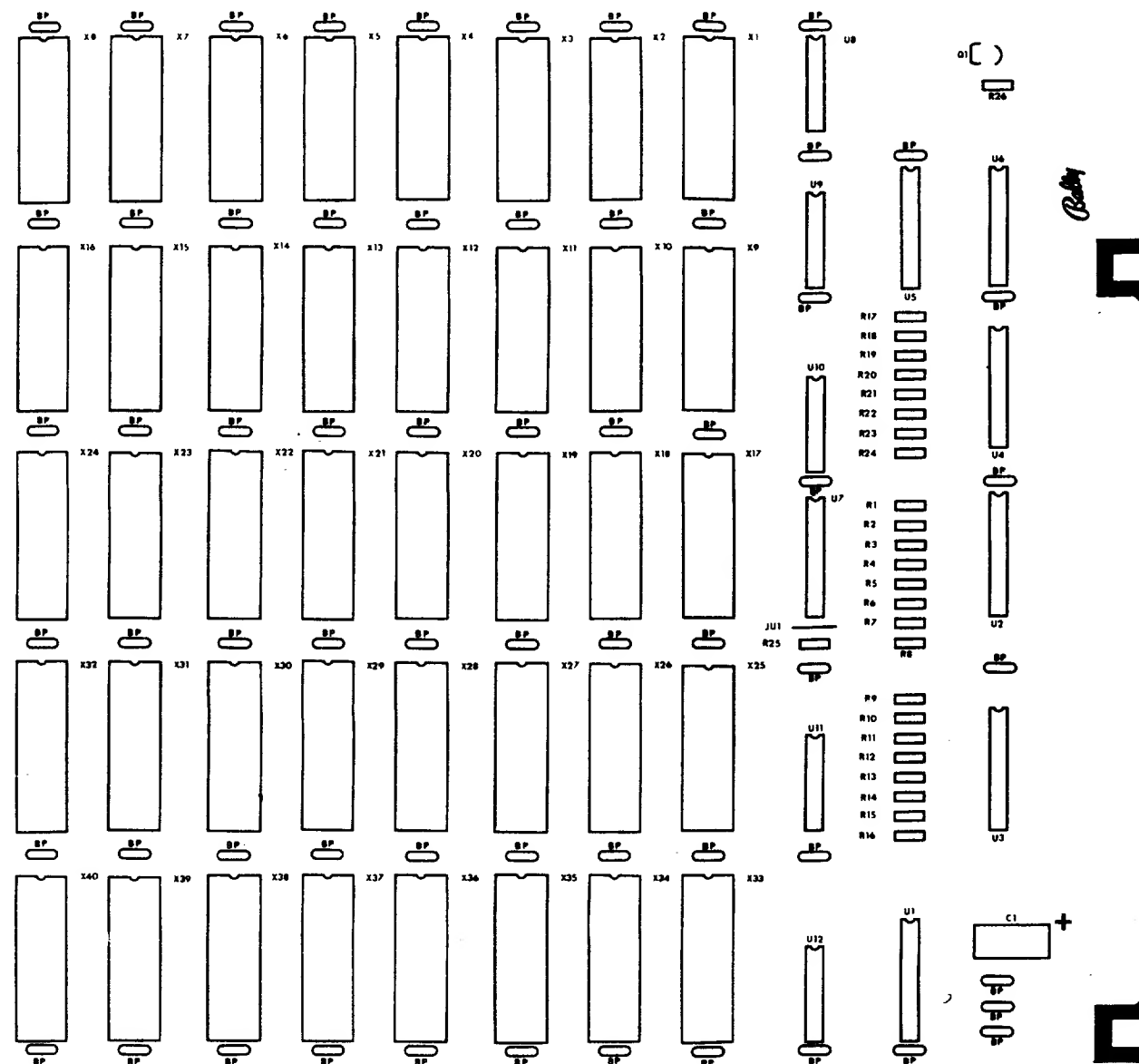


## DESIGNATION LIST

DESIGNATION NO.	DESCRIPTION
BP	0.1 MFD +80-20X AX. CER.
C1	15 MFD 20% TANT.
R1-R24 R25-R26	33 OHM 1/4W 5% 2700 OHM 1/4W 5%
Q1	2N4401
U1-U3 U4 U5 U6 U7 U8-U12	74LS244 74LS245 74LS273 CUSTOM U6 CUSTOM U7 74LS138
X1-X40	28-PIN IC SOCKET
JU1	WIRE JUMPER
	NON-REFERENCED USED ON PROFESSOR PAC-MAN
	27128 EPROM POS X1
	27128 EPROM POS X2
	27128 EPROM POS X3
	27128 EPROM POS X4
	27128 EPROM POS X5
	27128 EPROM POS X6
	27128 EPROM POS X7
	27128 EPROM POS X8
	27128 EPROM POS X9
	27128 EPROM POS X10
	27128 EPROM POS X11
	27128 EPROM POS X12
	27128 EPROM POS X13
	27128 EPROM POS X14

A082-91486-A000

640K EPROM BD.



## CROSS REFERENCE LIST

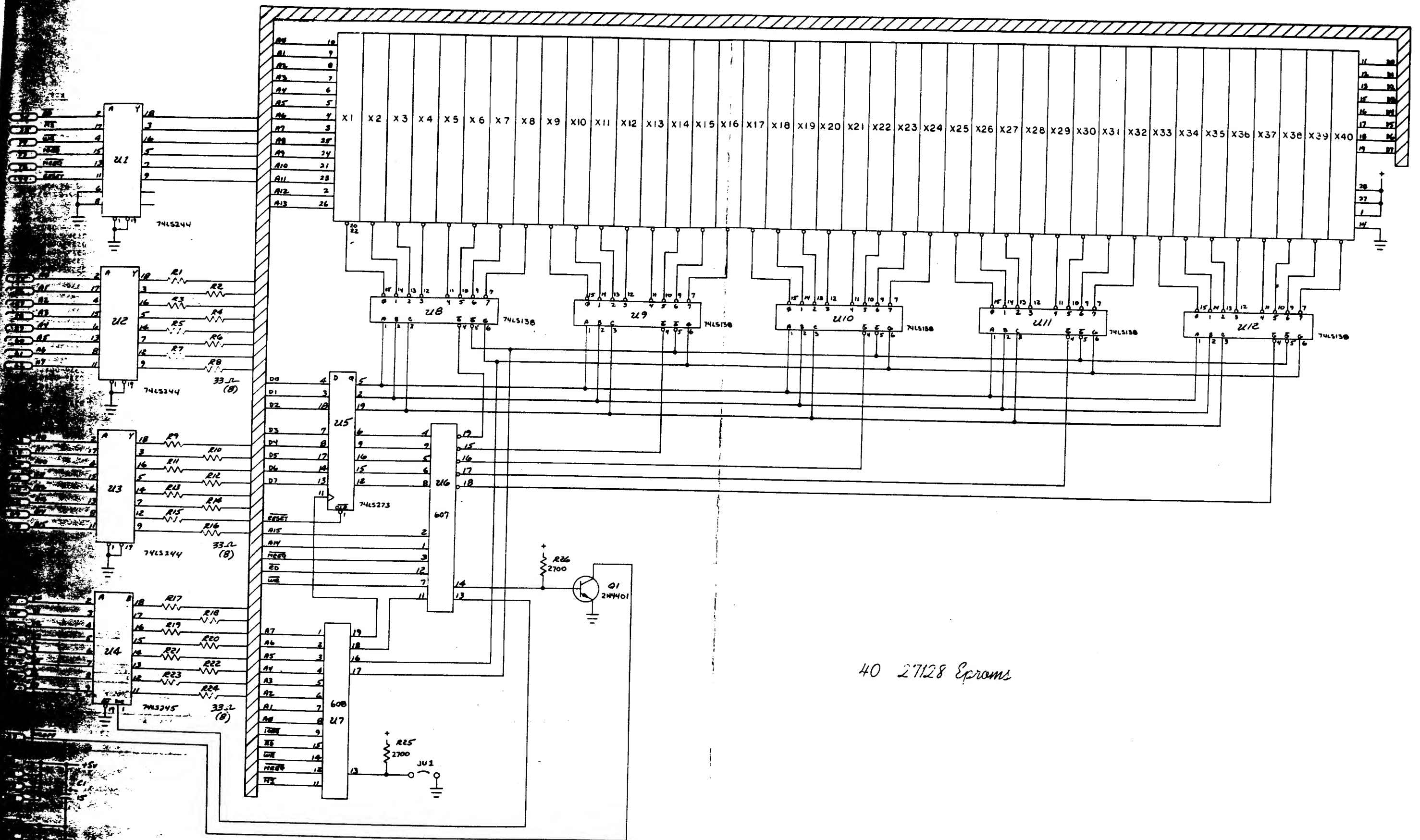
DESCRIPTION	QTY	DESIGNATION NO.	PART NOS.
0.1 MFD	63		0339-00800-0017
15 MFD	1	C1	0339-00800-0018
33 OHM	24	R1-R24	0062-07483-1XXX
2700 OHM	2	R25, R26	0062-19983-1XXX
2N4401	1	Q1	0339-00802-0005
74LS138	5	U8-U12	0339-00803-0031
74LS244	3	U1-U3	0339-00803-0082
74LS245	1	U4	0339-00803-0083
74LS273	1	U5	0339-00803-0084
CUSTOM U6	1	U6	0339-00803-0085
CUSTOM U7	1	U7	0339-00803-0086
20-PIN	7		0339-00804-0005
28-PIN IC SOCKET	40	X1-X40	0339-00804-0008
CARD EJECTORS	2	JU1	0339-00804-0016
P.C. BOARD, BLANK	1		0339-00804-0010
			A080-91486-A000

DESCRIPTION	QTY	DESIGNATION NO.	PART NOS.
PROG 27128	1		5730-42AXC-AXFD
PROG 27128	1		5730-42AXC-BXFD
PROG 27128	1		5730-42AXC-CXFD
PROG 27128	1		5730-42AXC-DXFD
PROG 27128	1		5730-42AXC-EXFD
PROG 27128	1		5730-42AXC-FXFD
PROG 27128	1		5730-42AXC-GXFD
PROG 27128	1		5730-42AXC-HXFD
PROG 27128	1		5730-42AXC-JXFD
PROG 27128	1		5730-42AXC-KXFD
PROG 27128	1		5730-42AXC-LXFD
PROG 27128	1		5730-42AXC-MXFD
PROG 27128	1		5730-42AXC-NXFD
PROG 27128	1		5730-42AXC-PXFD

PROJECT ENG: D. OTTO		USED ON PROF. PAC-MAN		REVISIONS	
DO NOT SCALE DIM.		SCALE	FULL	NO. REQ'D 1 PER	
DIM. TOLERANCES UNLESS SPECIFIED		DATE	7/11/83	ASSEMBLY DWG. 640K EPROM BD. A082-91486-A000	
PART NO		M051 - 00114 - A024			

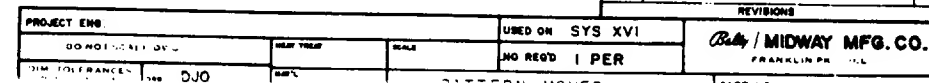
REVISIONS

Bally / MIDWAY MFG. CO.  
FRANKLIN PK ILL



PROJECT ENG		USED ON SYS XVI		REVISIONS	
DO NOT TEST UNLESS		NO RES' I PER		RCA / MIDWAY MFG. CO.	
DESIGNER: OTO		DATE: 07-15-02		PART NO: M051-00114-A025	
640K EPROM BOARD		SCHEMATIC DWG		FRANKLIN, ILL.	

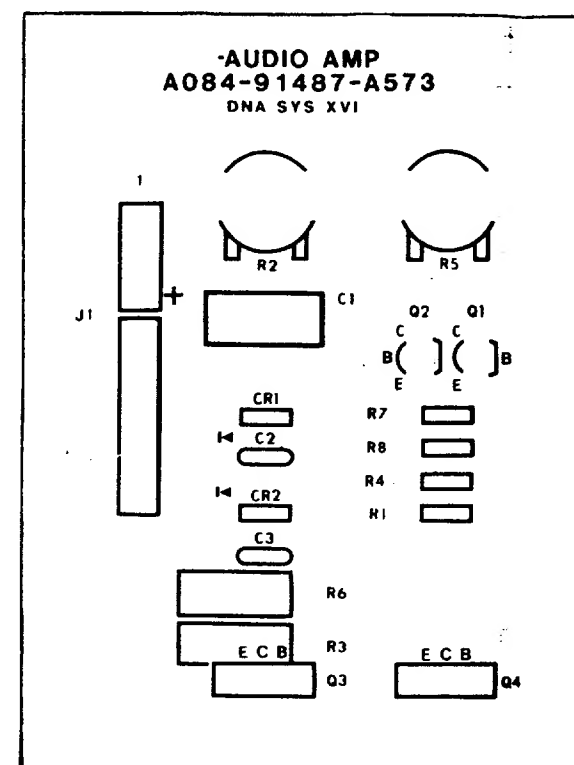




# DESIGNATION LIST

DESIGNATION NO.	DESCRIPTION
C1	15 MFD 20% TANT.
C2	0.1 MFD +80-20% AX. CER.
C3	0.1 MFD +80-20% AX. CER.
R1	330 OHM 1/4W 5%
R2	200 OHM POTENTIOMETER
R3	3.3 OHM 1W 5%
R4	330 OHM 1/4W 5%
R5	200 OHM POTENTIOMETER
R6	3.3 OHM 1W 5%
R7	33 OHM 1/4W 5%
R8	33 OHM 1/4W 5%
CR1	1N4004
CR2	1N4004
Q1	2N4403
Q2	2N4403
Q3	TIP-31
Q4	TIP-31
J1	KK156-10RA

NON-REFERENCED  
PC BOARD

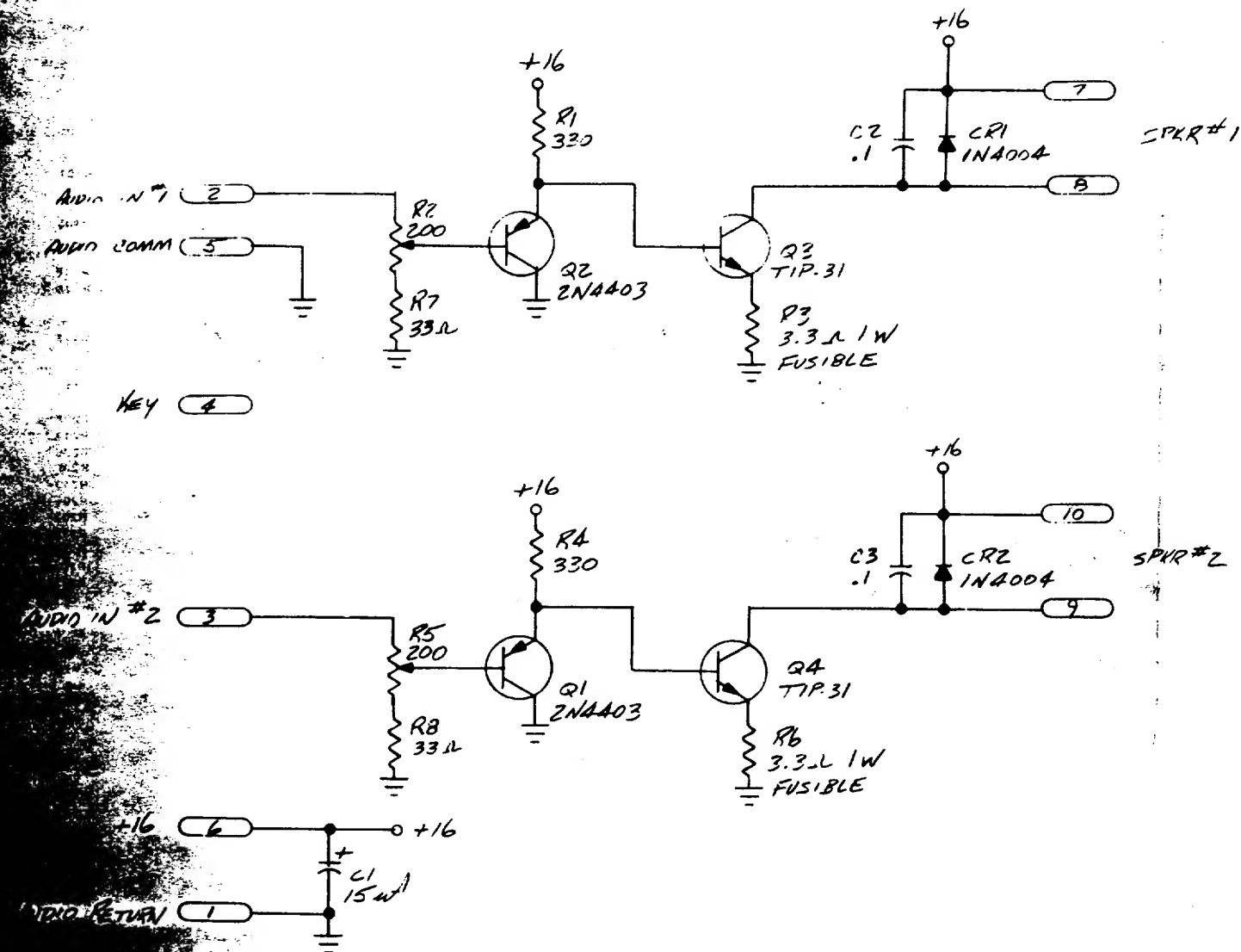


# CROSS REFERENCE LIST

DESCRIPTION	QTY	DESIGNATION NO.	PART NOS.
0.1 MFD	2	C2, C3	0573-00800-0003
15 MFD	1	C1	0573-00800-0004
3.3 OHM 1W	2	R3, R6	0062-038F3-1XXX
33 OHM	2	R7, R8	0062-074B3-1XXX
330 OHM	2	R1, R4	0062-144B3-1XXX
200 OHM	2	R2, R5	0062-050AX-1JED
1N4004	2	CR1, CR2	0573-00801-0002
2N4403	2	Q1, Q2	0573-00802-0006
TIP-31	2	Q3, Q4	0573-00802-0007
KK156-10RA	1	J1	3000-16387-1000
P.C BOARD, BLANK	1		A080-91487-A573


REVISIONS

PROJECT ENG: DAVE OTTO			USED ON PROF. PACMAN		<b>Bally / MIDWAY MFG. CO.</b> FRANKLIN, PA. U.S.A.
DO NOT SCALE DWG.		HEAT TREAT	SCALE FULL	NO. REQ'D 1 PER	
DIM. TOLERANCE - UNLESS OTHERWISE SPECIFIED		DRAWN	ASSY. DWG. AUDIO AMP		PART NO. M051 - 00573 - A010
CHECKED		MAT'L	A084 - 91487 - A573		
DATE 7/15/83		FINISH			

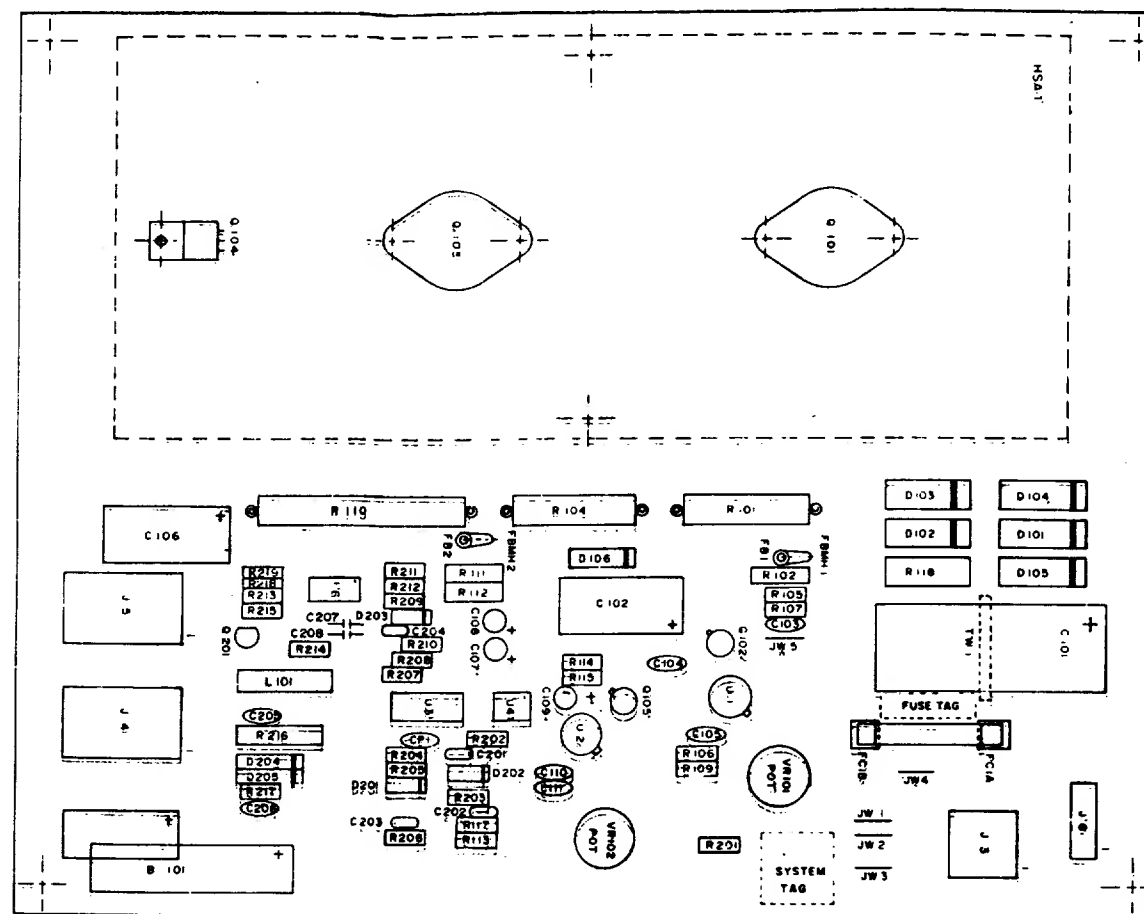


						REVISIONS	
DO NOT SCALE DWG.		HEAT TREAT	SCALE	USED ON SYS XVI	MIDWAY MFG. CO. FRANKLIN PK ILL		
DIM TOLERANCES UNLESS SPECIFIED		MAT'L	2=1	NO REQ'D I PER			
CONCENTRICITY V I R .005 FRACTIONAL 1/64 DECIMAL .005 HOLE DIA. + .002 - .005		DRN <i>RC4</i>	FINISH	AUDIO AMP SCHEMATIC DWG A084-91487-A573		PART NO M051-00573-A011	
DATE 7/15/83							



## DESIGNATION LIST

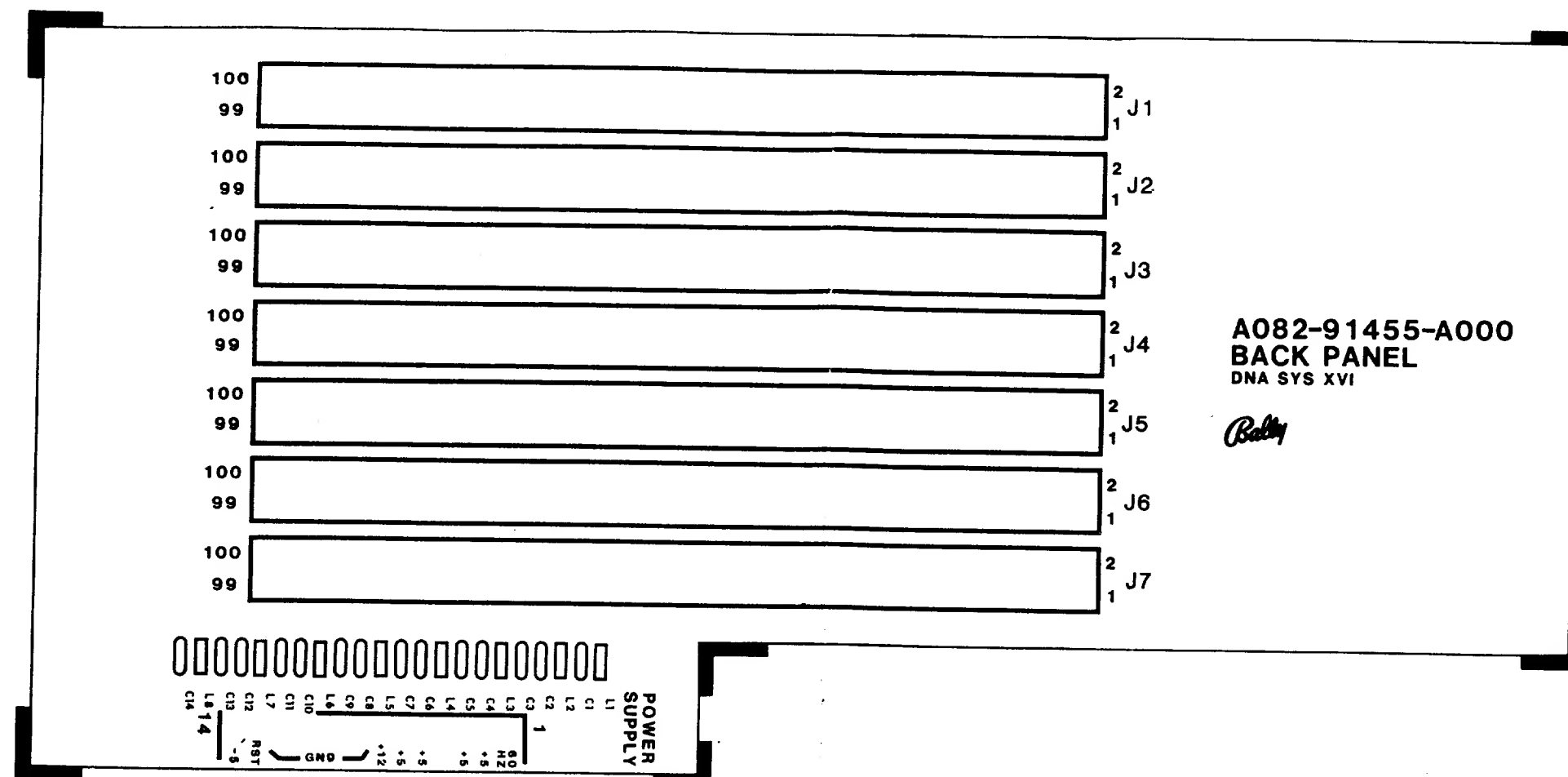
DESIGNATION	DESCRIPTION	DESIGNATION	DESCRIPTION
C101	4700uf AX. ELECT.	R117	560ohm 1/4W 5%
C102	470uf AX. ELECT.	R118	150ohm 2W
C103	.1uf AX. CER.	R201	270ohm 1/4W 5%
C104	.1uf AX. CER.	R202	1.2K 1/4W 5%
C105	47uf AX. CER.	R203	1.1M 1/4W 5%
C106	470uf AX. ELECT.	R204	3.3M 1/4W 5%
C107	100uf RD. TANT.	R205	10M 1/4W 5%
C108	.1uf RD. TANT.	R206	100K 1/4W 5%
C109	4.7uf RD. TANT.	R207	33K 1/4W 5%
C110	.1uf AX. CER.	R208	2M 1/4W 5%
C111	.1uf AX. CER.	R209	1M 1/4W 5%
C201	.01uf MYLAR	R210	1.2M 1/4W 5%
C202	.033uf MYLAR	R211	75K 1/4W 5%
C203	.01uf MYLAR	R212	75K 1/4W 5%
C204	.047uf MYLAR	R213	220K 1/4W 5%
C205	820pf AX. CER.	R214	3.9K 1/4W 5%
C206 C208	.01uf AX. CER.	R215	1.2K 1/4W 5%
C207	0.082uf MYLAR	R216	82ohm 1W 10%
		R217	270ohm 1/4W 5%
		R218	110K 1/4W 5%
		R219	68ohm 1/2W 5%
		VR101,102	100ohm POT
CP1	.1uf AX. CER.		
R101	18ohm 5W W/RES. SPACER	D101	A15F
R102	68ohm 1/2W 5%	D102	A15F
R104	10ohm 5W W/RES. SPACER	D103	A15F
R105	27ohm 1/4W 5%	D104	A15F
R106	270ohm 1/4W 5%	D105	A15F
R107	6.2K 1/4W 5%	D106	1N4001
		D201	1N4148
		D202	1N4148
		D203	1N4148
		D204	1N4001
		D205	1N4001
R109	1K 1/4W 5%		
R110	16ohm 15W W/RES. SPACER	Q102	2N2905
R111	6.8ohm 1/2W 5%	Q105	2N2905
R112	68ohm 1/2W 5%	Q201	2N4401
R113	1.2K 1/4W 5%		
R114	47ohm 1/4W 5%	U1	LM305 REG
R115	160ohm 1/4W 5%	U2	LM305 REG
		U3	LM3900
		U4	1N28
		U6	555
		L101	22uH INDUCTOR
		B101	BATTERY 3.6VDC 60DEG C
		F1	3 RA S BLO FUSE
		FC1A,1B	FUSE CLIP
		FB1,2	FERRITE BEAD
		TW1	TIE WRAP
		J3	9PIN P.C. MOUNT CONN(MALE)
		J4	15PIN P.C. MOUNT CONN(FEMALE)
		J5	15PIN P.C. MOUNT CONN(MALE)
		J6	3PIN P.C. MOUNT CONN(MALE)
		LB1	FUSE TAG
		LB2	SYSTEM TAG
		HSA1	HEAT SINK ASS'Y 1
		MHSA1	MOUNTING HARDWARE(HEAT SINK)
			2 SCREW
			4 WASHER
			2 HEXNUT
		JW1-5	JUMPER WIRE
		FBMH1,2	FERRITE BEAD MOUNTING HARDWARE



FROJ. ENG. L. DEKKER		MIDWAY MFG. CO.	
DO NOT SCALE DRAWING	FULL	NO WELD THER.	FRANKLIN, ILL.
5/14/82		A082-90412-D000	
ASSEMBLY DRAWING 125VA PWRSPY		M051-00945-B006	

## CROSS REFERENCE LIST

DESCRIPTION	Q'ty	DESIGNATION	PART #
47pf AX. CER.	1	C105	0945-00811-0100
820pf AX. CER.	1	C205	0945-00816-0400
.01uf AX. CER.	2	C206,208	0945-00816-0100
.01uf MYLAR	2	C201,203	0945-00816-0200
.033uf MYLAR	1	C202	0945-00816-0500
.047uf MYLAR	1	C204	0945-00816-0300
0.082uf AX. CER.	1	C207	0945-00816-1900
.1uf AX. CER.	5	C103,104,110,111, CP1	0945-00811-0200
.1uf RAD. TANT.	1	C108	0945-00811-0300
4.7uf RAD. TANT.	1	C109	0945-00811-0400
100uf RAD. TANT.	1	C107	0945-00811-0500
470uf AX. ELECT.	2	C102,106	0945-00816-0600
470uf AX. ELECT.	1	C101	0945-00811-0700
16ohm 15W 5%	1	R110	0945-00815-0100
18ohm 5W 5%	1	R101	0945-00815-0200
6.8ohm 1/2W 5%	1	R111	0062-04703-1XXX
10ohm 5W 5%	1	R104	0945-00812-0100
27ohm 1/4W 5%	1	R105	0062-06883-1XXX
47ohm 1/4W 5%	1	R114	0062-08683-1XXX
68ohm 1/2W 5%	3	R102,112,219	0062-09803-1XXX
82ohm 1W 10%	1	R216	0062-104F5-1XXX
150ohm 2W 5%	1	R118	0945-00812-0200
160ohm 1/4W 5%	1	R115	0062-12483-1XXX
270ohm 1/4W 5%	3	R106,201,217	0062-13883-1XX
560ohm 1/4W 5%	1	R117	0062-16283-1XX
1K 1/4W 5%	1	R109	0062-17983-1XX
1.2K 1/4W 5%	3	R113,202,215	0062-18383-1XX
3.9K 1/4W 5%	1	R214	0062-20783-1XX
6.2K 1/4W 5%	1	R107	0062-21783-1XX
33K 1/4W 5%	1	R207	0062-25183-1XX
75K 1/4W 5%	2	R211,212	0062-26983-1XXX
100K 1/4W 5%	1	R206	0062-27583-1XXX
110K 1/4W 5%	1	R218	0062-27783-1XXX
220K 1/4W 5%	1	R213	0062-29183-1XXX
1M 1/4W 5%	1	R209	0062-32383-1XXX
1.1M 1/4W 5%	1	R203	0062-32583-1XXX
1.2M 1/4W 5%	1	R210	0062-32783-1XXX
2M 1/4W 5%	1	R208	0062-33783-1XXX
3.3M 1/4W 5%	1	R204	0062-34783-1XXX
10M 1/4W 5%	1	R205	0062-37183-1XXX
100ohm POT	2	VR101,102	0945-00814-0000
LM305 REG	2	U1,2	0945-00811-0100
555	1	U6	0929-00810-4500
LM3900	1	U3	0945-00813-0200
1N28	1	U4	0945-00813-0300
A15F RECTIFIER	5	D101-105	0945-00804-0200
1N4001	3	D106,204,205	0945-00804-0300
1N4148	3	D201-203	0945-00804-0500
2N2905	2	Q102,105	0945-00808-0300
2N4401	1	Q201	0945-00804-0400
BATTERY 3.6VDC 60DEG-C	1	B101	0017-00003-0377
FUSE 3/8A S-BLO	1	F1	0945-00808-0400
FUSE CLIP	2	FC1A,1B	0017-00003-0214
TIE WRAP	1	TW1	0945-00814-0300
FERRITE BEAD	2	FB1,2	0017-00009-02
FERRITE MOUNTING HDW.	2	FBMH1,2	0017-00033-01
22uH INDUCTOR	1	L101	0945-00814-0200
FUSE TAG	1		M051-00945-A004
SYSTEM TAG	1		M051-00945-A009
P.C.B.	1		A080-90412-D000
HEAT SINK ASS'Y	1	HSA1	A945-00008-0000
(SEE HS ASS'Y DRAWING "XX NOTE")			
4-40 X 10 SLT RND	2	MHSA1A,2A	0017-00101-0072
4-40 HEX NUT	2	MHSA1E,2E	0017-00103-0002
WSH 4-120-250-018	4	MHSA1B,10	0017-00104-0071
		MHSA2B,2D	
3PIN P.C. MOUNT CONN (MALE)	1	J6	0017-00021-044
9PIN P.C. MOUNT CONN (MALE)	1	J3	0017-00021-042
15PIN P.C. MOUNT CONN (FEMALE)	1	J4	0017-00021-044
15PIN P.C. MOUNT CONN (MALE)	1	J5	0017-00021-044
22AWG T&R BARE 2.5"	5	JW1-5	0151-00087-0000



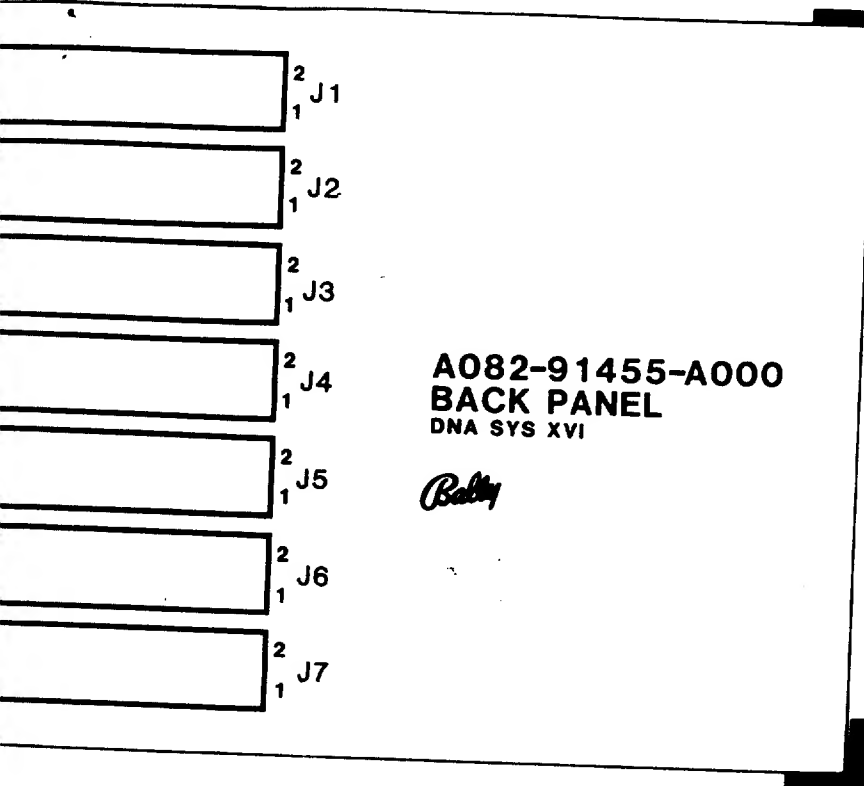
# DESIGNATION LIST

<u>DESIGNATION NO.</u>	<u>DESCRIPTION</u>
C1-C14	0.1 MFD +80-20% AX. CER.
J1-J7	EDGE CONNECTOR
L1-L8	FERRITE BEAD
	NON-REFERENCED KK156-14ST PC BOARD

# CROSS REFERENCE LIST

<u>DESCRIPTION</u>	<u>QTY</u>	<u>DESIGNATION NO.</u>	<u>PART NOS.</u>
0.1 MFD	14	C1-C14	0339-00800-0010
FERRITE BEAD	8	L1-L8	0339-00804-0015
100-P0S	7	J1-J7	0339-00804-0014
KK156-14ST	1		3000-16367-1400
P.C. BOARD, BLANK	1		A080-91455-A000

PROJECT ENG: DAVE OTTO		USED ON PROF. PACMAN		REVISIONS	
DO NOT SCALE DWG.		HEAT TREAT	SCALE FULL	NO. REQ'D 1 PER	
DIM. TOLERANCES UNLESS SPECIFIED		MAT'L.	ASSY. DWG. BACK PANEL		PART NO.
CONCENTRICITY TYP. 0.005		FINISH	A082-91455-A000		M051 - 00114 - A092
FRACTIONAL TYP. 1/64				FRANKLIN PK. ILL.	
DECIMAL TYP. 0.005					
HOLE DIA. + 0.02 0.00		DATE 7/5/83			



A082-91455-A000  
BACK PANEL  
DNA SYS XVI



REFERENCE LIST

QTY	DESIGNATION NO.	PART NOS.
14	C1-C14	0339-00800-0010
8	L1-L8	0339-00804-0015
7	J1-J7	0339-00804-0014
1		3000-16367-1400
1		A080-91455-A000


TO		USED ON PROF. PACMAN		REVISIONS	
HEAT TREAT	SCALE	NO. REQ'D I PER		<i>Bally</i> / MIDWAY MFG. CO. FRANKLIN PK. ILL.	
MAT'L.	FULL				
FINISH					
/ 5 / 83		ASSY. DWG. BACK PANEL		PART NO.	
		A082-91455-A000		M051 - 00114 - A092	

PROFESSOR PAC-MAN  
OPTION SWITCH SETTINGS

LOCATED ON GAME BOARD							
* COCKTAIL TABLE ONLY * UPRIGHT AND MINI	SW#1	SW#2	SW#3	SW#4	SW#5	SW#6	SW#7 SW#8
	ON					NOT USED	NOT USED NOT USED
* FULL RESET * NORMAL OPERATION	ON						
	OFF						
* LOCKUP ON ERROR DURING CONTINUOUS TEST * NORMAL OPERATION	ON						
	OFF						
* GAME GIVES AUDIO RE- SPONSE TO TEST RESULTS * NO AUDIO RESPONSE	ON						
	OFF						
* GAME USES 32K ROM'S GAME USES 8K & 16K ROM'S	ON						
	OFF						
* INDICATES FACTORY RECOMMENDED SETTINGS						PART NO. M051-00573-A007	

THE REMAINDER OF YOUR NEW GAME'S MOST COMMON OPTION SETTINGS ARE CONDUCTED DURING THE THE SELF-TEST MODE AND WILL BE COVERED IN DETAIL IN THAT SECTION OF YOUR MANUAL.

